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CATALOGUE
OF THE
UNGULATE MAMMALS
IN THE
BRITISH MUSEUM (NATURAL HISTORY).

Vol. V.

PERISSODACTYLA
(HORSES, TAPIRS, RHINOCEROSES),

HYRACOIDEA
(HYRAXES),

PROBOSCIDEA
(ELEPHANTS).

WITH ADDENDA TO THE EARLIER VOLUMES.

By the late RICHARD LYDEKKER, F.R.S.

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PREFACE

THE hope was expressed, in the Preface to the previous Volume, that it might be possible to issue a fifth, or concluding Volume, without undue delay. That hope has been realised, as the result of finding the materials for the completion of the work among the papers of the late Mr. Richard Lydekker.

The volume now published is practically as the author left it, and the only alterations that have been made are verbal ones. Even the illustrations are those which he had himself selected.

It will be obvious, however, that this volume should not be regarded as a finished production. The earlier part is drawn up on the general lines of the preceding volumes, and contains lists of the specimens in the collection. These do not appear in the second half of the volume, which consists mainly of a list of species and subspecies, with synonymy and indications of the typical localities. The manuscript was, indeed, in the condition of a preliminary draft, and readers should bear in mind that it has not had the advantage of being amplified and revised by the author.

On the other hand, it has not been thought advisable to make any attempt to complete the volume on the full original plan, partly on account of the difficulty of finding anyone competent to do so, and partly because the mixed responsibility for the work which would be thereby introduced would not be for the benefit of science.

The thanks of the Trustees are due to Messrs. George Allen & Unwin, Ltd., for permission to use certain copyright figures published in Mr. Lydekker's work, *The Horse and its Relatives;* to Lord Rothschild, F.R.S., for the use of figures from the *Novitates Zoologicæ;* and to the Zoological Society

of London, the United States National Museum, and Major Stanley S. Flower for other figures, as indicated in the respective legends. Their thanks are also due to Dr. J. Büttikofer and to Mr. F. A. O. Pym for photographs which have served as the originals of other figures, and to the Duchess of Bedford and to Mr. R. I. Pocock, F.R.S., for information about certain specimens.

SIDNEY F. HARMER,
Keeper of Zoology.

British Museum (Natural History),
London, S.W.
January 26th, 1916.

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CATALOGUE

OF

UNGULATES.

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SUBORDER II.—PERISSODACTYLA.

At the present day the "odd-toed" ungulates are much less numerously represented than the Artiodactyla, comprising, as they do, only three family groups, with a relatively small number of genera and species. In the middle and early part of the Tertiary epoch they were much more abundant. They are distinguished from the Artiodactyla by the following characters.

The toes, of which there may be four, three, or one on the fore-feet, but only three or one on the hind-feet, severally correspond, when three are present (fig. 1, B), to the second, third, and fourth of the typical pentadactyle series, and to the third when the number is reduced to one; the additional digit sometimes retained in the fore-limb representing the fifth of the full series; in all cases the toe corresponding to the third of the typical series is symmetrical in itself, and larger than the second and fourth, when these are retained. The number of the combined dorsal and lumbar vertebræ never falls below twenty-two, and, in existing forms, is usually twenty-three. An alisphenoid canal traverses the bones of the base of the hind part of the skull, on the upper aspect of which there is a more or less marked expansion of the superior extremities of the nasal bones. Very generally the premolar teeth, with the exception of the first, are of the

same complex type as the molars (fig. 3, p. 5), and the last lower molar commonly carries only two lobes, or, if it has three, the hindmost is not developed in the corresponding tooth of the premolar series. The femur carries a large, curved "third trochanter" for the insertion of one of the gluteal muscles. In the tarsus the upper surface of the astragalus is pulley-like, for articulation with deep grooves in the lower end of the tibia, but its lower aspect (unlike that of the

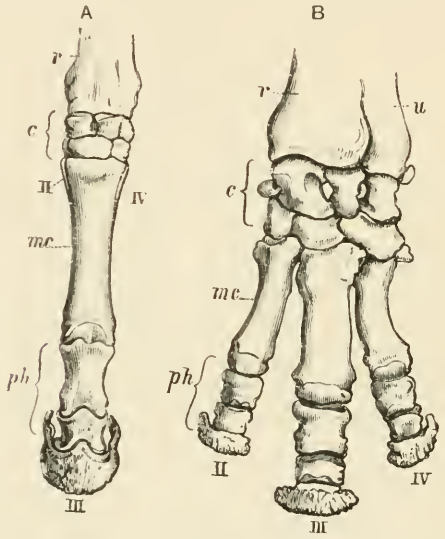

FIG. 1.—BONES OF THE LEFT FORE-FOOT OF A HORSE (A) AND OF A RHINOCEROS (B).

r, radius; *u*, ulna; *c*, carpus (forming the so-called "knee" of the Horse); *mc*, metacarpus (constituting the "cannon-bone" in the Horse); *ph*, phalanges, or toe-bones. II, III, IV, the toes corresponding to those so numbered in the typical series of five, the lateral metacarpals being represented in A by the "splint-bones" at the upper end of the median metacarpal.

Artiodactyla) is flattened, and articulates to a much greater extent with the navicular than with the cuboid, which is less developed than in the even-toed group. The stomach is simple, and the cæcum large and capacious. The placenta is diffuse and devoid of cotyledons; the teats are invariably inguinal in position; and the liver lacks a gall-bladder. When cranial appendages are present they are quite different in structure from those of the Artiodactyla.

The existing representatives of the suborder naturally arrange themselves in the three following families:—

A. No cranial appendages; a full series of front teeth.
   a. A single functional digit on each foot;* cheek-teeth tall-crowned (hypsodont) and complex. Europe,† Asia (exclusive of almost the whole of the Oriental region), and Africa..... *Equidæ*.
   b. Four front and three hind toes; cheek-teeth low-crowned (brachyodont) and simple. Malaya and Central and South America... *Tapiridæ*.

B. Cranial appendages, in the form of one or two solid conical horns,‡ placed in the median line; front teeth incomplete or wanting; feet three-toed. India, Malaya, and Ethiopian Africa..... *Rhinocerotidæ*.

Family I.—EQUIDÆ.

Long-headed, long-limbed, and slenderly built hypsodont perissodactyles, with not more than three toes to each foot, of which the middle one is stouter than the laterals, and in the existing species is the only one present, the lateral pair being represented solely by the splint-bones (fig. 1, A, II, IV); hoofs compact and box-like: skull long and low, with elongated nasals, and the orbits encircled by bone (fig. 2); central valleys of the tall-crowned cheek-teeth completely filled with cement, and their enamel thrown into complex folds (fig. 3); upper premolars as complex as, and rather larger than the molars; summits of the incisors with the enamel infolded in a pocket-like manner; ulna and fibula incomplete at their lower ends, and the mesocuneiform bone of the tarsus welded with the entocuneiform. In females the canines are small or wanting.

All the existing forms may be included in the single genus *Equus*, which has a range over North-eastern Europe (now extinct there), Asia Minor and Syria, Persia, Baluchistan, and the deserts of North-western and Central India, Central Asia, and Africa south of the Sahara. During the

* Three toes in many extinct forms.

† Now exterminated in a wild condition; in the Tertiary period the range included America.

‡ Absent in certain extinct forms, and said to be absent in the female of the recent *Rhinoceros sondaicus*.

Tertiary epoch the range included the greater part of Europe and North America, and, after its union with the northern

Fig. 2.—Skull of Female Tarpan, or Mongolian Wild Horse (*Equus caballus przewalskii*), Gobi Desert, Mongolia.
Presented by the Duke of Bedford, K.G. (7. 5. 15. 1).

half of the New World, South America. The group probably originated in Eastern Asia, whence it spread in one direction to Western Europe, and in the other to North America.

Genus EQUUS.

Equus, *Linn. Syst. Nat.* ed. 10, vol. i, p. 73, 1758, ed. 12, vol. i. p. 100, 1766; *Griffith, Animal Kingdom*, vol. iii, p. 340, vol. v, p. 294, 1827; *Flower and Lydekker, Study of Mammals*, p. 381, 1891; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i. p. 282. 1900.

Dentition: $i.\frac{3}{3}$, $c.\frac{1}{1}$, $p.\frac{(3-4)}{3}$, $m.\frac{3}{3}$.

A single toe on each foot, with remnants of the lateral (2nd and 4th) metacarpals and metatarsals in the shape of splint-bones (fig 1, A); anterior pillar of upper cheek-teeth (fig. 3, *p*) united by a narrow, enamel-bordered neck to the dentine of the main body of the tooth; first upper premolar, when present, considerably smaller than the others, and but rarely developed in existing species, in which it is commonly known as the "wolf-tooth"; slits bordering nasal bones of

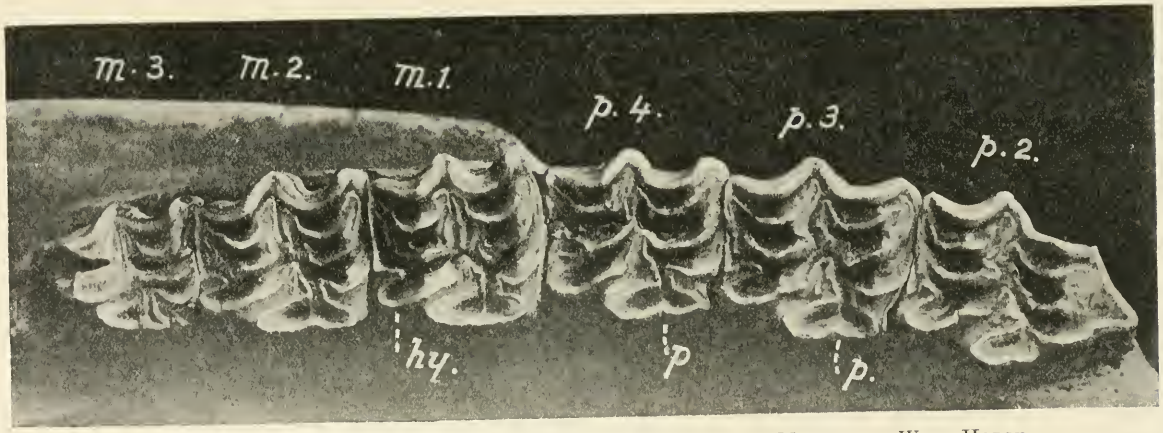

FIG. 3.—THE RIGHT UPPER CHEEK-TEETH OF THE TARPAN, OR MONGOLIAN WILD HORSE (*Equus caballus przewalskii*).

p.2—*p*.4, premolars; *m*.1—*m*.3, molars; *p*, anterior inner pillar; *hy*, posterior inner pillar, or hypocone.

From Lydekker, *The Horse and its Relatives*, 1912, pl. v. fig. 1.

skull short (fig. 2); ears more or less elongated; tail long, in wild forms terminally tufted, or more or less hairy throughout its length; a bare callosity, or "chestnut" on the inner side of each fore-leg above the "knee" (carpus).

Distribution, at the present day, co-extensive with that of the family.

The genus is divisible into the following subgeneric groups:—

A. Head and neck (like body) devoid of stripes.
  a. Ears relatively short; hoofs broad..... *Equus*.
  b. Ears longer; hoofs narrower..... *Asinus*.

B. Head and neck (and in most cases the body) marked with numerous dark and light stripes, which are transverse on the neck (and body).
  a. Ears very broad and densely haired internally *Dolichohippus*.
  b. Ears narrow and sparsely haired internally..... *Hippotigris*.

1. Subgenus **EQUUS**.

Equus, *H. Smith*, *Jardine's Naturalist's Libr.*, *Mamm.* vol. xx. p. 192, 1841; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 304, 1902; *Heller*, *Smithson. Misc. Collect.* vol. lx, no. 8, p. 2, 1912.

I. EQUUS CABALLUS.

Equus caballus, *Linn. Syst. Nat.* ed. 10, vol. i, p. 73, 1758, ed. 12, vol. i, p. 100, 1766; *Griffith*, *Animal Kingdom*, vol. iii, p. 341, vol. v, p. 294, 1827; *Gray*, *Cat. Ungulata Brit. Mus.* p. 263, 1852; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 395, 1884; *Flower*, *The Horse*, p. 72, 1891; *Ridgeway*, *Thoroughbred Horse*, p. 12, 1905; *Lydekker*, *Horse and its Relatives*, p. 103, 1912.

A.—Equus caballus caballus.

Equus caballus typicus, *Lydekker*, *Proc. Zool. Soc.* 1904, p. 432, *Horse and its Relatives*, p. 176, 1912.

Including:—

Equus ferus, *Pallas*, *Zoogr. Rosso-Asiat.* vol. i, p. 260, 1811.

Equus gmelini, *Antonius*, *Naturwiss. Wochenschrift*, ser. 2, vol. xi, p. 516, 1912.

Typical locality Scandinavia, with the possible exception of the Arab and its derivatives, this race is taken to include all domesticated breeds, together with the half-bred so-called

tarpan of the Russian steppes (now extinct), through which there was in all probability a complete gradation into the pure-bred tarpan of Mongolia, constituting the next race.

The tail is usually well haired up to the root, and the callosities on the hind-limbs are in most cases well developed.

The specimens of domesticated horses in the collection do not come within the purview of this Catalogue.

B.—Equus caballus przewalskii (Figs. 2–4).

Equus przewalskii, *Poliakow*, *Izvestia Soc. Imp. Russ. Geogr.* 1881, p. 1, pls. i and ii; *Morgan*, *Ann. Mag. Nat. Hist.* ser. 6, vol. viii, p. 16, 1881; *Noack. Zool. Garten*, vol. xxv, p. 331, 1884; *Kobelt*, *ibid.* vol. xxxii, p. 358, 1887; *Trouessart*, *La Nature*, vol. xviii, p. 369, 1890. *Le Naturaliste*, 1902, p. 209; *Flower*, *The Horse*, p. 78, 1891; *Flower and Lydekker*, *Study of Mammals*, p. 383, 1891; *Grevé*, *Zool. Garten*, vol. xlii, 1901; *Tscherski*, *Mem. Ac. Sci. St. Pétersb.* vol. xl, p. 291, 1892; *Prazák*, *Wild Horses*, vol. i, p. 4, 1898; *Sclater*, *Proc. Zool. Soc.* 1901, vol. i, pp. 35 and 166, 1902, vol. i, p. 137, pl. xiii; *Oustalet*, *Bull. Mus. Paris*, 1902, p. 244; *Tichomirow*, *Zool. Anz.* vol. xxv, p. 344, 1902; *Noack*, *ibid.* pp. 135 and 165, 1902; *Beddard*, *Cambridge Nat. Hist.*, *Mamm.* p. 241, 1902; *Salensky*, *Wissenschaftl. Result. Przewalski Reisen*, *Zool. Theil.* vol. i, pt. 2, p. 1, pls. i–iv, 1902; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 307, 1902; *Matschie*, *Naturwiss. Wochenschrift*, ser. 2, vol. ii, p. 581, 1903, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 309, 1909; *Ridgeway*, *Thoroughbred Horse*, p. 26, 1905; *Griffini*, *Le Zebre*, p. 13, (1912) 1913.

Equus caballus przewalskii, *Lydekker*, *Field*, vol. c, p. 680, 1902, *Game Animals of India*, *etc.* p. 43, 1907, *Horse and its Relatives*, p. 107, 1912; *Trouessart*, *Cat. Mamm.*, Suppl. p. 644, 1904; *Heller*, *Smithson. Misc. Collect.* vol. lx, no. 8, p. 2, 1912.

Equus hagenbecki, *Matschie*, *Naturwiss. Wochenschrift*, ser. 2, vol. ii, p. 581, 1903, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 309, 1909.

Equus ferus, *Antonius*, *Naturwiss. Wochenschrift*, ser. 2, vol. xi, p. 516, 1912, *nec* Pallas (?).

Typical locality Eastern Gobi, Zungaria.

2. 1. 31. 1. Skull and skin, young. Border of the Gobi; collected by Herr C. Hagenbeck. *Purchased*, 1902.

2. 1. 31. 2. Skull and skin, young. Same locality and collector. *Same history.*

2. 9. 25. 1. Skeleton, female. Same locality and collector. *Presented by the Hon. Walter Rothschild*, 1902.

2. 9. 25. 2. Skull, female. Same locality and collector.
Same history.

5. 8. 14. 1. Skull and skin, young. From a foal born at Woburn, Beds.
Presented by the Duke of Bedford, K.G., 1905.

Fig. 4.—Female Tarpan, or Mongolian Wild Horse (*Equus caballus przewalskii*), Gobi Desert, Mongolia.
Presented by the Duke of Bedford, K.G. (7. 5. 15. 1).

7. 5. 15. 2. Skeleton, male, mounted, and skin. Border of the Gobi; died at Woburn. *Same donor*, 1907.

7. 5. 15. 1. Skin, female, mounted (fig. 4), and skeleton. Same locality. *Same donor*, 1907.

II. EQUUS KIANG (Fig. 5).

Equus kiang, *Moorcroft, Travels in Ladak*, vol. i, p. 312, 1842; *Hodgson, Journ. Asiat. Soc. Bengal*, vol. xi. p. 286, 1842; *Gray, Proc. Zool. Soc.* 1849, p. 29; *Hay, ibid*, 1850, p. 353, pl. lxxiii; *Matschie, Sitzber. Ges. nat. Freunde*, 1893, p. 208, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii. p. 306, 1909; *Pocock. Ann. Mag. Nat. Hist.* ser. 8, vol. iv, p. 526, 1909; *Lydekker.*

Horse and its Relatives, p. 178, 1912; *Griffini*, *Le Zebre*. p. 16, (1912) 1913.

Asinus equioides, *Hodgson*, *Journ. Asiat. Soc. Bengal*, vol. xi. p. 287, 1842.

Asinus polyodon, *Hodgson*, *Calcutta Journ. Nat. Hist.* vol. vii, p. 469, pl. vi, 1847, vol. viii, p. 98, 1848.

Equus hemionus, *Walker*, *Journ. Asiat. Soc. Bengal*, vol. xvii, pt. 2, p. 1, pl. i, 1848; *Cunningham*, *Ladak*. p. 195, pl. vi, 1854; *Blyth*, *Journ. Asiat. Soc. Bengal*, vol. xxviii, p. 229, 1859, *Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 136, 1863; *Strachey*, *Journ. Asiat. Soc. Bengal*, vol. xxix, p. 136, 1860; *Sterndale*, *Mamm. India*, p. 401, 1884; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* p. 412, 1884; *Flower and Lydekker*. *Study of Mammals*, p. 383, 1891; *Blanford*, *Fauna Brit. India*, *Mamm.* p. 470, 1891 (*partim*); *Beddard*, *Cambridge Nat. Hist.*, *Mamm.* p. 242, 1902; *Griffini*, *Le Zebre*, p. 16, (1912) 1913.

Asinus hemionus, *Gray*, *Cat. Ungulata Brit. Mus.* p. 272, 1852, *Cat. Carnivora, etc. Brit. Mus.* p. 271. 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 37, 1873; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 274, 1862; *partim*.

Asinus kyang, *Kinloch*, *Large Game Shooting in Thibet*, p. 13, 1869.

Equus hemionus *var.* kiang, *W. L. Sclater*, *Cat. Mamm. Ind. Mus.* pt. ii, p. 199, 1891.

Equus hemionus kiang, *Lydekker*, *Proc. Zool. Soc.* 1904, vol. i, p. 432, pl. xxviii, *Novit. Zool.* vol. xi, p. 585, 1904. *Game Animals of India*, p. 43, 1907.

Equus equioides, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

Asinus kiang, *Heller*, *Smithson. Misc. Collect.* vol. lx, no. 8. p. 2, 1912.

KIANG.

Typical locality Ladak.

48. 6. 11. 16 (976, *a*). Skull. Probably Hundes district of Tibet. Type of *E. polyodon*.

Presented by B. H. Hodgson, Esq., 1848.

48. 6. 11. 17 (976, *b*). Skull. Same locality.

Same history.

48. 6. 11. 18 (976, *c*). Skull. Same locality.

Same history.

50. 4. 11. 1. Skin, immature, mounted, and skull. Ladak. *Presented by the Earl of Gifford*, 1850.

51. 7. 16. 3. Skin. Ladak; collected by Gen. Sir J. Strachey. *Presented by the Hon. East India Co.*, 1851.

51. 7. 16. 4 (976, *g*). Skull. Same locality and collector.

Same history.

51. 7. 16. 5 (976, *f*, *bis.*). Skull. Same locality and collector. *Same history.*

55. 7. 16. 3. Skin. Hundes.

Presented by H.H. the Maharaja Dhuleep Sing, 1855.

58. 6. 24. 119 (976, *h*). Skull and skin, immature. Upper Sikhim. *Presented by B. H. Hodgson, Esq.*, 1858.

58. 9. 24. 150 (976, *g*). Skull. Same locality.

Same history.

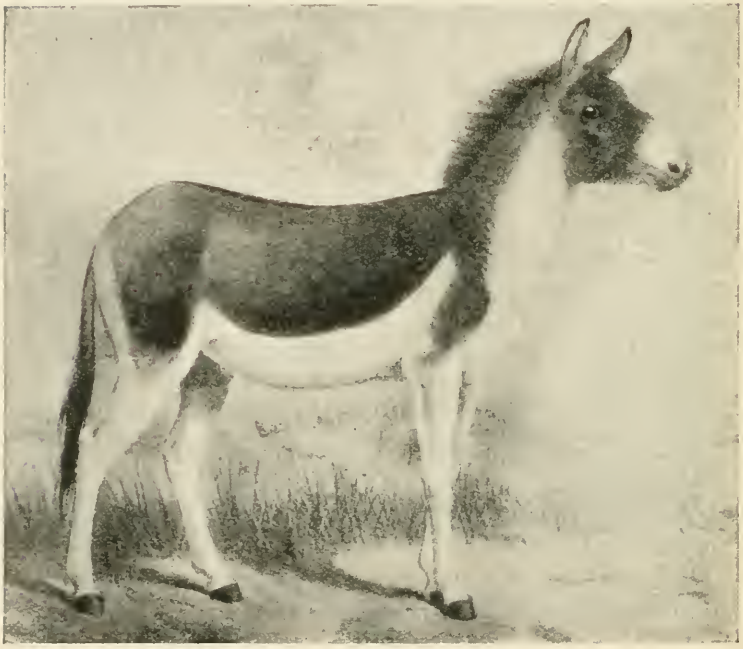

FIG. 5.—FEMALE KIANG (*Equus kiang*).

From a specimen, in summer coat, in the Duke of Bedford's collection at Woburn Park, said to have come from Ladak.

From Lydekker, *Proc. Zool. Soc.* 1904, vol. i. pl. xxviii.

976, *e*. Skeleton. Probably Ladak.

Purchased (*Brandt*).

60. 5. 4. 77. Skin, mounted. Tibet? (probably Ladak).

Transferred from India Museum, 1860.

79. 11. 21. 194 (976, *i*). Skull. Ladak; collected by Gen. Sir J. Strachey. *Same history*, 1879.

79. 11. 21. 182 (976, *j*). Skull. Hundes (?); collected by B. H. Hodgson, Esq. *Same history.*

79. 11. 21. 258. Skin. Same locality and collector.
Same history.

91. 10. 7. 176. Skin. Sikhim; collected by L. Mandelli, Esq. *Presented by Dr. W. T. Blanford*, 1891.

94. 2. 8. 3. Skull. Koko Nor.
Presented by St. George Littledale, Esq., 1894.

99. 6. 23. 3. Skin, mounted. Ladak.
Purchased (Gerrard), 1899.

5. 6. 20. 1. Skull and skin. Near Lhasa.
Presented by Lieut.-Col. G. R. Macdonald, 1905.

12. 5. 7. 1. Skull. Ebi Nor.
Presented by J. H. Miller, Esq., 1912.

III. EQUUS HEMIONUS.

Equus hemionus, *Pallas, Nov. Comm. Petrop.* vol. xix, p. 397, pl. vii, 1775; *Schreber, Säugthiere*, pl. ccxi, 1778; *F. Cuvier, Hist. Nat. Mamm.* pl. ccxv, 1823; *Griffith, Animal Kingdom*, vol. iii, p. 342, vol. v, p. 259, 1827; *Lesson, Nouv. Tabl. Règne Anim.* p. 166, 1842; *Radde, Reisen Öst.-Siberien*, vol. i, p. 293, 1861; *Severtzow, Ann. Mag. Nat. Hist.* ser. 4, vol. xviii, p. 378, 1867; *George, Ann. Sci. Nat. Zool.* vol. xii, p. 5, pls. i–v, 1869; *Thomas, Trans. Linn. Soc.* ser. 2, vol. v, p. 61, 1889; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 412, 1884 (*partim*); *Radde and Walther, Ergebnisse Exped. Transkasp.* vol. i, p. 1058, 1890; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 198, 1901 (*partim*); *Flower and Lydekker, Study of Mammals*, p. 383, 1901 (*partim*); *Blanford, Fauna Brit. India, Mamm.* p. 470, 1891 (*partim*); *Lydekker, Proc. Zool. Soc.* 1904, vol. i, p. 432, pl. xxvii, *Novit. Zool.* vol. xi, p. 584, 1904, *Game Animals of India, etc.* p. 43, 1907, *Horse and its Relatives*, p. 180, 1912; *Ridgeway, Thoroughbred Horse*, p. 44, 1905; *Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 104, 1907; *Pocock, Ann. Mag. Nat. Hist.* ser. 8, vol. iv, p. 526, 1909; *Griffini, Le Zebre*, p. 16, (1912) 1913.

Asinus hemionus, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xii, p. 317, pl. xx, 1841; *Gray, Cat. Ungulata Brit. Mus.* p. 272, 1852, *Cat. Carnivora, etc., Brit. Mus.* p. 271, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 37, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 274, 1862, *partim.*

Equus hemionus *var.* typicus, *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 198, 1891.

Equus (Asinus) hemionus, *Trouessart, Cat. Mamm.* p. 794, 1898.

Equus hemionus hemionus, *Lydekker, Novit. Zool.* vol. xi, p. 586, 1904.

Chigetai; Kulan.

Typical locality Altai.

IV. EQUUS ONAGER.

Equus onager, *Pallas, Acta Ac. Petrop.* 1777, p. 254, pl. xi; *Schreber, Säugthiere*, pl. ccciii, 1778: *I. Geoffroy, C.-R. Ac. Sci. Paris*, vol. xli, pp. 1220 and 1223, 1855; *Blyth, Journ. Asiat. Soc. Bengal*, vol. xxviii, p. 229, 1859, *Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 135, 1863; *Jerdon, Mamm. India*, p. 236, 1866; *Stoliczka, Journ. Asiat. Soc. Bengal*, vol. xli, pt. 2, p. 228, 1872; *Sterndale, Mamm. India*, p. 399, 1884; *Flower and Lydekker, Study of Mammals*, p. 385, 1891; *Matschie, Sitzber. Ges. nat. Freunde*, 1893, p. 208; *Beddard, Cambridge Nat. Hist., Mamm.* p. 242, 1902; *Lydekker, Novit. Zool.* vol. xi, p. 587, 1904, *Game Animals of India, etc.* p. 48, 1907, *Horse and its Relatives*, p. 181, 1912; *Ridgeway, Thoroughbred Horse*, p. 46, 1905; *Pocock, Ann. Mag. Nat. Hist. ser.* 8, vol. iv, p. 526, 1909; *Griffini, Le Zebre*, p. 16, (1912) 1913.

Equus hemionus, *I. Geoffroy, Ann. Mus. Paris*, vol, iv, p. 77, p. 7, pl. viii, 1804; *F. Cuvier, Hist. Nat. Mamm.* vol. iv, pls. 321 and 322, 1823; *Sykes, Proc. Zool. Soc.* 1837, p. 91; *Hutton and Blyth, Journ. Asiat. Soc. Bengal*, vol. xv, p. 145, 1846; *Gray, Proc. Zool. Soc.* 1849, p. 29. *Knowsley Menagerie*, pl. liii, 1850; *Blyth, Journ. Asiat. Soc. Bengal*, vol. xxvi, p. 239, 1858; *Blanford, Eastern Persia*, vol. ii, p. 84, 1876, *Fauna Brit. India, Mamm.* p. 470, 1891 (*partim*).

Asinus onager, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xii, p. 307, pl. xviii, 1841; *Gray, Cat. Ungulata Brit. Mus.* p. 269, 1852, *Cat. Carnivora, etc. Brit. Mus.* p. 269, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 37, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 273, 1862; *Murray, Zool. Sind.* p. 54, 1884; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

Equus khur, *Lesson, Mammalogie*, p. 347, 1827.

Equus (Asinus) onager. *Trouessart, Cat. Mamm.* p. 795, 1884.

Onager; Ghor-Khar; Ghur; (?) Kulan.

Typical locality Kasbin, north-western Persia, near the borders of the Caspian.

A.—Equus onager indicus.

Asinus indicus, *Sclater, Proc. Zool. Soc*, 1862, p. 163, *nomen nudum; Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

Equus hemionus *var.* indicus, *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 199, 1891.

Equus indicus, *Matschie, Sitzber. Ges. nat. Freunde*, 1893, p. 208.

Equus onager indicus, *Lydekker, Novit. Zool.* vol. xi, p. 588, pl. xvii, 1904, *Game Animals of India, etc.* p. 48, 1997, *Horse and its Relatives*, p. 182, 1912.

Ghor-Khar.

Typical locality (may be taken to be) Kach.

46. 1. 10. 3. Skin, mounted. Kach.
Presented by the Earl of Derby, 1846.

46. 1. 10. 5 (705, *a*). Skeleton, imperfect, of the same individual as the last. *Same history.*

85. 6. 13. 4. Skull, young. Thurr Parkur district, Kach.
Presented by the Karachi Museum, 1885.

91. 5. 13. 1. Skull and skins. Sham Plains, eastern Baluchistan. *Presented by Dr. W. T. Blanford*, 1891.

B.—Equus onager castaneus (Fig. 6).

Equus onager castaneus, *Lydekker*, *Novit. Zool.* vol. xi, p. 590, pl. xviii, 1904, *Horse and its Relatives*, p. 182, 1912; *Griffini*, *Le Zebre*, p. 16, (1912) 1913.

Equus castaneus, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

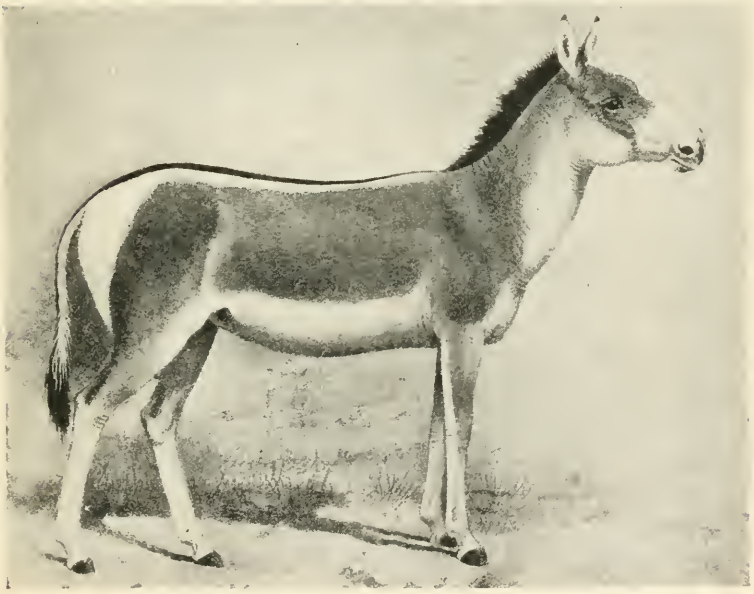

Fig. 6.—Female Kobdo Onager (*Equus onager castaneus*).
From the type-specimen in the Duke of Bedford's collection at Woburn Park, said to have come from Kirghis-Nor, Kobdo, Western Mongolia.
From Lydekker, *Novitates Zoologicæ*, 1904, vol. xi, pl. xviii.

Typical locality apparently Kirghis-Nor, Kobdo, western Mongolia.

Type a living specimen (1904) in the collection of the Duke of Bedford, at Woburn Abbey, Beds (fig. 6).

C.—Equus onager hemippus.

Equus hemippus, *I. Geoffroy, C.-R. Ac. Sci. Paris*, vol. xli, pp. 1214 and 1220, 1855, *Rev. Zool.* vol. vii, p. 593, 1855; *George, Ann. Sci. Nat., Zool.* vol. xii, p. 5, 1869; *Milne-Edwards, Arch. Mus. Paris*, vol. v, *Bull.* p. 39, pl. iv, 1869; *Flower and Lydekker, Study of Mammals*, p. 383, 1891; *Matschie, Sitzber. Ges. nat. Freunde*, 1893, p. 208; *Beddard, Cambridge Nat. Hist., Mamm.* p. 242, 1902; *Pocock, Ann. Mag. Nat. Hist. ser.* 8, vol. iv, p. 526, 1909; *Griffini, Le Zebre*, p. 16, (1912) 1913.

Asinus hamar, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xii, pl. xix, 1841.

Equus hamar, *Matschie, Sitzber. Ges. nat. Freunde*, 1893, p. 208, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

Equus (Asinus) hemippus, *Trouessart, Cat. Mamm.* p. 796, 1898.

Equus onager hemippus, *Lydekker, Novit. Zool.* vol. xi, p. 591, 1904, *Horse and its Relatives*, p. 184, 1912; *Ridgeway, Thoroughbred Horse*, p. 46, 1905.

Asinus hemippus, *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1900.

Typical locality Syria.

976, *c*. Skin, immature (8 months). Mesopotamia.
Presented by J. H. Layard, Esq., before 1852.

67. 12. 3. 1 (705, *b*). Skeleton and skin. Syria.
Purchased (Zoological Society), 1867.

D.—Equus onager onager.

Equus onager *var.* typicus, *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 198, 1891.

Equus onager onager, *Lydekker, Novit. Zool.* vol. xi, p. 591, pl. xix, 1904.

Equus onager typicus, *Lydekker, Horse and its Relatives*, p. 183, 1912.

Onager; Ghur.

Typical locality Kasbin, north-western Persia.

10. 7. 12. 1. Skin. Yezd, Persia. *Presented by Messrs. R. C. Barker and E. J. Blackman*, 1910.

10. 7. 12. 2. A similar specimen. Same locality. *Same history.*

10. 7. 12. 3. Another similar specimen. Same locality. *Same history.*

2. Subgenus **DOLICHOHIPPUS.**

Megacephalon, *Hilzheimer*, *Abh. Senckenberg. Ges.* vol. xxxi, p. 95, 1912; nec *Gray*, 1846.

Dolichohippus, *Heller*, *Smithson. Misc. Collect.* vol. lx, no. 8, p. 1, 1912.

Ludolphozecora, *Griffini*, *Natura*, vol. iv. p. 13, 1913.

Ears large, broad, and thickly haired internally: coat marked with numerous narrow black and white stripes, which

Fig. 7.—Head of Grévy's Zebra (*Equus* [*Dolichohippus*] *grevyi*).

[The original photograph, found among Mr. Lydekker's paper, is marked "Tana River 1893, Mrs. J. D. Neumann."]

From Lydekker, *The Horse and its Relatives*, 1912, pl. xvi, fig. 2.

form upwardly directed concavities on the rump; chestnuts wanting on hind-limbs, usually small on front limbs; hoofs

large and somewhat elongated; skull long and narrow, especially the muzzle, in which the diastema is equal to the combined basal length of the last four cheek-teeth; lambdoid crest of occiput produced behind line of condyles, and extending almost on a level with the auditory meatus, instead of being vertically above it as in the subgenera *Equus* and *Hippotigris;* lachrymal large, forming one-third of orbital

Fig. 8.—Head of Grévy's Zebra (*Equus* [*Dolichohippus*] *grevyi*).

rim; ascending process of premaxilla narrow; palatal foramina long and narrow; brain-case shallow and depressed.

Heller remarks that in general shape the skull approximates to that of *E. caballus,* but that in its extreme elongation and narrowness it differs from all the other members of the family; the horse occupying in this respect a position intermediate between the present species on the one hand and the quagga, zebra, and ass on the other.

The range is restricted to north-eastern and eastern Ethiopian Africa.

V. EQUUS (DOLICHOHIPPUS) GREVYI (Figs. 7–9).

Equus grevyi, *Oustalet*, *La Nature*, vol. x, p. 12, 1882; *Sclater*, *Proc. Zool. Soc.* 1882, p. 721, 1890, p. 413; *Flower*, *The Horse*, p. 88, 1891; *Flower and Lydekker*, *Study of Mammals*, p. 387, 1891; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 48, 1897, ser. 7, vol. x, p. 305 and 308, 1902; *Bryden*, *Nature and Sport in S. Africa*, p. 168, 1897; *Prazák*, *Wild Horses*, vol. i, pls. vi–viii, 1898; *Neumann*, *Great and Small Game of Africa*, p. 84, 1899;

Fig. 9.—Grévy's Zebra (*Equus* [*Dolichohippus*] *grevyi*).

Swayne, *Great and Small Game of Africa*, p. 90, 1899, *Seventeen Trips to Somaliland*, ed. 2, p. 32, 1900; *Ridgeway*, *Thoroughbred Horse*, p. 57, 1905, *Proc. Zool. Soc.* 1909, p. 551; *Camerano*, *Atti Ac. Torino*, vol. xxxvii, p. 422, 1902; *Beddard*, *Cambridge Nat. Hist.*, *Mamm.* p. 244, 1902; *Scherren*, *Proc. Zool. Soc.* 1905, p. 145; *Elliot*, *Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 104, 1907; *Lydekker*, *Game Animals of Africa*, p. 46, 1908, *Horse and its Relatives*, p. 190, 1912; *Drake-Brockman*, *Mamm. of Somali*, p. 103, 1910; *Griffini*, *Le Zebre*, p. 163, (1912) 1913, *Natura*, vol. iv, p. 13, 1913; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, pp. 34 and 41, 1912.

Equus grevyi faurei, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1898, 170;

Camerano, Atti Ac. Torino, vol. xxxvii, p. 420, 1902; *Griffini, Le Zebre*, p. 170, (1912) 1913.

Megacephalon grevyi.* *Hilzheimer, Abh. Senckenberg. Ges.* vol. xxxi, p. 95, 1912.

Dolichohippus grevyi, *Heller, Smithson. Misc. Collect.* vol. lx, no. 8, p. 1, 1912.

Equus (Ludolphozecora) grevyi, *Griffini, Natura*, vol. iv, p. 14, 1913.

Grévy's Zebra.

The typical and only representative of the subgenus.

Typical locality Abyssinia.

Type a living specimen sent to Paris by the Emperor Menelik, the skin of which is presumably now in the Paris Museum.

A.—Equus grevyi grevyi.

Typical locality Abyssinia.

B.—Equus grevyi berberensis.

Equus grevyi berberensis, *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x. p. 308, 1902; *Lydekker, Game Animals of Africa*, p. 49, 1908, *Horse and its Relatives*, p. 192, 1912; *Griffini, Le Zebre*, p. 170, 1912 (1913).

Typical locality Berbera, Somaliland.

90. 9. 29. 1. Skin. Berbera; collected by Herr J. Menges. *Presented by Dr. P. L. Sclater*, 1890.

93. 12. 1. 2–3. Two head-skins and a skull, female. Ogadin, Somaliland; collected by Lieut.-Col. H. G. C. Swayne. *Same donor*, 1893.

94. 2. 21. 1–2. Two skins, the first the type. Durhi, Ogardain. *Same donor*, 1894.

94. 5. 3. 1. Skin, mounted. Somaliland.
Presented by Lieut.-Gen. Sir A. H. Paget, K.C.B., 1894.

98. 4. 27. 6. Skin. Near Lake Rudolf.
Presented by H. S. H. Cavendish, Esq., 1898.

12. 10. 3. 1. Skin and skull, immature. From an animal born in the London Zoological Gardens.
Presented by the Zoological Society, 1912.

* Although Hilzheimer stated that *Megacephalon* is a subgenus, he gave the name as above.

12. 2. 25. 1. Skin, semi-albino, mounted. Lorian Swamp, Upper Guasen-gishu Valley, British East Africa.
Presented by A. B. Percival, Esq., 1912.

14. 3. 13. 1. Head, young, mounted. Somaliland.
Presented by the Rowland Ward Trustees, 1914.

3. Subgenus **HIPPOTIGRIS.**

Hippotigris, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. vii, p. 321, 1841; *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909; *Heller, Smithson. Misc. Collect.* vol. lx, no. 8, p. 2, 1912.

Pocock restricts *Hippotigris* to the quagga and its subspecies; but in Hamilton Smith's original description *H. zebra* stands first of the five species there recognised; and that species was definitely fixed as the type of the group by W. L. Sclater* in 1900.

VI. EQUUS (HIPPOTIGRIS) QUAGGA.

Equus quagga, *Gmelin, Linn.'s Syst. Nat.* vol. i, p. 213, 1788; *Schreber, Säugthiere*, pl. cccxvii, 1790; *Griffith, Animal Kingdom*, vol. v, p. 295, 1827; *Harris, Game Anim. S. Africa*, pl. ii, 1840; *Lesson, Nouv. Tabl. Règne Anim., Mamm.* p. 166, 1842; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 413, 1884; *Flower, The Horse*, p. 90, 1891; *Flower and Lydekker, Study of Mammals*, p. 384, 1891; *Pocock, Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 37, 1897, ser. 7, vol. x, p. 306, 1902, vol. xiv, p. 318, 1904; *Bryden, Nature and Sport in S. Africa*, p. 178, 1897, *Great and Small Game of Africa*, p. 72, 1899; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 294, 1900; *Renshaw, Zoologist*, ser. 4, vol. v, p. 42, 1901, *Nat. Hist. Essays*, p. 179, 1904; *Lorenz, Proc. Zool. Soc.* 1902, vol. i, p. 32; *Beddard, Cambridge Nat. Hist., Mamm.* p. 244, 1902; *Lydekker, Proc. Zool. Soc.* 1904, vol. i, p. 428, *Game Animals of Africa*, p. 52, 1908, *Horse and its Relatives*, p. 194, 1912; *Ridgeway, Thoroughbred Horse*, p. 79, 1805, *Proc. Zool. Soc.* 1909, p. 563; *Roux, Rev. Suisse Zool.* vol. xviii, p. 917, 1910; *Griffini, Le Zebre*, p. 232, (1912) 1913, *Natura*, vol. iv, p. 15, 1913; *Lotichius, Ber. Senckenberg. Ges.* vol. xliii, p. 104, 1912; *Schwarz, Arch. Naturgesch.* vol. lxxviii, pp. 34 and 48, 1912.

Equus quacha, *F. Cuvier, Hist. Nat. Mamm.* pl. ccxiv, 1821.

Equus qouagga, *Lesson, Mammalogie*, p. 347, 1827.

Equus quaccha, *Griffith, Animal Kingdom*, vol. iii, p. 344, 1827.

Hippotigris quacha, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xii, p. 330, pl. xxiv, 1841.

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* *Fauna S. Africa, Mamm.* vol. i, p. 288; see also Palmer, *Index Gen. Mamm.* p. 328, 1904.

Hippotigris isabellinus, *H. Smith*, *Jardine's Naturalist's Libr.*, *Mamm.* vol. xii, p. 332, pl. xxv, 1841.

Asinus quagga, *Gray*, *Zool. Journ.* vol. i, p. 246, 1825, *List Mamm. Brit. Mus.* p. 183, 1843, *Knowsley Menagerie*, pl. lv, 1850, *Cat. Ungulata Brit. Mus.* p. 275, 1852, *Cat. Carnivora, etc. Brit. Mus.* p. 274, 1869, *Hand-List Thick-Skinned Mamm. Brit. Mus.* p. 37, 1873; *Brookes*, *Cat. Mus.* p. 20, 1828; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 272, 1862.

Hippotigris quagga, *Nicolls and Eglington*, *Sportsman in S. Africa*, p. 76, 1892; *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Equus (Hippotigris) quagga, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902; *Hilzheimer*, *Abh. Senckenberg. Ges.* vol. xxxi, p. 99, 1912.

Quagga, Quacha, or Quaha.

Typical locality the plains of Cape Colony south of the Orange River.

A.—Equus quagga quagga (Fig. 10).

Fig. 10.—The True, or Cape Quagga (*Equus quagga quagga*).
Photographed from life by Mr. F. York.

The specimen represented appears to have been the female which lived in the Gardens of the Zoological Society, Regent's Park, London, from 1851 to 1872 (*cf.* Ridgeway, *Proc. Zool. Soc.* 1909, p. 575).

Equus quagga lorenzi, *Lydekker*, *Knowledge*, vol. xxv, p. 221, 1902; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xiv, p. 322, 1904.

Equus quagga greyi, *Lydekker*, *loc. cit.* 1902; *Pocock*, *loc. cit.* 1904.

Equus quagga danielli, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xiv, p. 319, pl. x, 1904.

Equus quagga trouessarti, *Camerano*, *Atti Acc. Torino*, vol. xxxvii, p. 564, 1908.

Equus quagga quagga, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xix, p. 516, 1907; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, pp. 52 and 56, 1912, by whom all the foregoing forms are regarded as not really separable from the present race.

Quagga, Quacha, or Quaha.

Typical locality Cape Colony; now extinct.

64. 7. 2. 3 (1449, *a*). Skin, mounted, and skeleton. Cape Colony. From an animal presented by the Right Hon. Sir George Grey in 1859 to the Zoological Society, in whose menagerie it lived till 1864. Apparently the last survivor of its race. Type of *E. quagga greyi*.

Purchased (*Zoological Society*), 1864.

B.—Equus quagga burchelli.

Asinus burchellii, *Gray*, *Zool. Journ.* vol. i, p. 247, pl. iv, 1825, *Cat. Ungulata Brit. Mus.* p. 276, 1852, *Cat. Carnivora, etc. Brit. Mus.* p. 275, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 37, 1873; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 273, 1862; *Sclater*, *Proc. Zool. Soc.* 1865, pl. xxii.

Equus montanus, *F. Cuvier*, *Hist. Nat. Mamm.* pls. cccxvi and cccxvii, 1824; nec *Burchell*, 1822.

Equus zebroides, *Lesson*, *Man. Mamm.* p. 346, 1827, *Nouv. Tabl. Règne Anim.* p. 166, 1842.

Equus festivus, *Wagner*, *Schreber's Säugthiere*, Suppl. vol. vi, p. 216, pl. cccxvii, *B*, 1834.

Hippotigris campestris, *H. Smith*, *Jardine's Naturalist's Libr.*, *Mamm.* vol. xii, p. 329, 1841.

Equus burchellii, *Bennett*, *List Anim. Zool. Gardens*, p. 40, 1830; *Fischer*, *Synop. Mamm.* p. 432, 1842; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. 2, p. 414, 1884; *Flower and Lydekker*, *Study of Mammals*, p. 386, 1891; *Flower*, *The Horse*, p. 87, 1891; *W. L. Sclater*, *Cat. Mamm. Ind. Mus.* pt. ii, p. 200, 1891, *Fauna S. Africa*, *Mamm.* vol. i, p. 288, 1900; *Nicolls and Eglington*, *Sportsman in S. Africa*, p. 74, 1892; *Matschie*, *Zool. Garten*, vol. xxxv, p. 66, 1894; *Bryden*, *Nature and Sport in S. Africa*, p. 171, 1897; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 39, 1897, ser. 7, vol. x, p. 306, 1902; *Prazák*, *Wild Horses*, vol. i, pls. xxv and xxvi, 1899; *Neumann*, *Great and Small Game of Africa*, p. 84, 1899; *Beddard*, *Cambridge Nat. Hist.*, *Mamm.* p. 249, 1902; *Ridgeway*, *Thoroughbred Horse*, p. 59, 1905, *Proc. Zool. Soc.* 1909, pp. 552 and 564; *Trouessart*,

Bull. Mus. Paris, 1906, p. 449; *Lyon, Proc. U.S. Nat. Mus.* vol. xxxii, p. 1, pls. i–iii, 1907;* *Lydekker, Game Animals of Africa*, p. 56, 1908, *Horse and its Relatives*, p. 191, 1912; *Hamilton, Proc. Zool. Soc.* 1912, p. 757; *Cabrera, Cat. Met. Mam. Mus. Madrid*, p. 134, 1912.

Equus burchelli typicus, *Selous, Great and Small Game of Africa*, p. 79, 1899; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 288, 1900.

Equus quagga burchelli, *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. xiv, p. 315, 1904, vol. xix, p. 517, 1907, *Proc. Zool. Soc.* 1909, p. 415; *Schwarz, Arch. Naturgesch.* vol. lxxviii, pp. 51 and 57, 1912; *Griffini, Le Zebre*, p. 199, (1912) 1913.

Hippotigris burchelli, *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Equus burchelli paucistriatus, *Hilzheimer, Abh. Senckenberg. Ges.* vol. xxxi, p. 87, 1912.†

Bontequagga; Burchell's Zebra; Dauw.

Typical locality apparently the plains north of the Vaal River, in British Bechuanaland.

The type specimen was originally in the collection, but was destroyed, or given away, at a time when the value of "types" was not recognised.

50. 11. 92. 63 (854, *b*). Skeleton. South Africa, referable to this or one of the allied southern races.

Purchased (Zoological Society), 1850.

64. 6. 1. 2 (852, *c*). Skin, young, formerly mounted. From an animal born in the London Zoological Gardens, and pertaining to this or one of the allied southern races.

Purchased (Zoological Society), 1864.

75, *a*. A very similar specimen. South Africa. *b*. of Gray's 1852 Catalogue. *From the South African Museum.*

3. 2. 21. 1. Skin, mounted. Orange River Colony. Perhaps not pure-bred, as the striping extends over most of the quarters. *Presented by the Hon. Walter Rothschild*, 1903.

C.—Equus quagga antiquorum.

Hippotigris antiquorum, *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xii, p. 327, pl. xxii, 1841; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1914.

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* The figured animal, which came from Barnum and Bailey's Menagerie, is stated by Schwarz, *Arch. Naturgesch.* vol. lxxviii, p. 51, to be a hybrid of unknown parentage.

† Based on two specimens, one of which (the type), according to Schwarz, belongs to this race, and the other to the true quagga.

Equus antiquorum, *Matschie*, *Zool. Garten*, vol. xxxv, p. 6, 1894, *Sitzber. Ges. nat. Freunde*, 1898, p. 173.

Equus burchelli antiquorum, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 42, 1897; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 289, 1900; *Camerano*, *Atti Acc. Torino*, vol. xxxvii, pp. 613 and 614, 1902; *Lydekker*, *Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 197, 1912.

Equus quagga antiquorum, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 46, 1912; *Griffini*, *Le Zebre*, p. 220, (1912) 1913.

Equus chapmani antiquorum, *Trouessart*, *Cat. Mamm.*, Suppl. p. 645, 1905.

Typical locality probably south-west Africa, north of the sources of the Orange River; the range includes the Benguella district of Angola.

99. 4. 5. 1. Skin and skull. Angola; collected by G. W. Penrice, Esq. *Purchased* (*Gerrard*), 1899.

99. 4. 5. 2. Skin and skull. Same locality and collector. *Same history.*

D.—Equus quagga pococki.

Equus burchelli pococki, *Brasil and Pennetier*, *Actes Mus. Hist. Nat. Rouen*, vol. xii, p. 31, pls. ii–iii, 1909; *Trouessart*, *La Nature*, vol. xxxviii, p. 196, 1910.

Equus quagga pococki, *Griffini*, *Le Zebre*, p. 217, (1912) 1913, *Atti Soc. Ital.* 1913, p. 13, pl. xii, *Natura*, vol. iv, p. 19, 1913.

Typical locality not definitely known, but doubtless some part of southern Africa.

Type in Rouen Museum.

Regarded by Griffini, who refers to it as a specimen in the Tring Museum, as a connecting link between *E. q. burchelli* and *E. q. antiquorum* on the one hand, and *E. q. chapmani* and *E. q. wahlbergi* on the other; but its claims to distinction seem doubtful.

No specimen in collection.

E.—Equus quagga chapmani.

Equus chapmani,* *Layard*, *Proc. Zool. Soc.* 1865, p. 417; *Sclater*, *ibid.* pl. xxii; *Matschie*, *Zool. Garten*, vol. xxxv, p. 9, 1894; *Prazák*, *Wild Horses*, vol. i, pls. xvii–xix, 1898; *Trouessart and Prazák*, *Bull. Mus. Paris*, 1899, p. 350.

* Misspelt *chapmanni* in original notice.

Equus burchelli chapmani,* *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 43, 1897; *Ridgeway*, *Thoroughbred Horse*, p. 65, 1905; *Lydekker*, *Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 198, 1912.

Equus quagga chapmani, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902, vol. xiv, p. 315, 1904; *Griffini*, *Le Zebre*, p. 214, (1912) 1913, *Natura*, vol. iv, p. 19, 1913.

Hippotigris chapmani,* *Roberts*, *Ann. Transvaal Mus.* vol. iv. p. 184. 1914.

Typical locality probably south-central Africa, between Damaraland and Matabililand.

No actual type is in existence, and Sclater's plate must be regarded in that light.

F.—Equus quagga wahlbergi.

Equus burchelli wahlbergi, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 44, 1897; *Prazák*, *Wild Horses*, vol. i, pl. xxiv. 1898; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 290, 1900; *Lydekker*, *Game Animals of Africa*, p. 57, 1908, *Horse and its Relatives*, p. 197, 1912; *Hilzheimer*, *Abh. Senckenberg. Ges.* vol. xxxi, p. 97, 1912.

Equus quagga wahlbergi, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902, vol. xiv, p. 315, 1904, *Proc. Zool. Soc.* 1909, p. 416; *Griffini*, *Le Zebre*, p. 216, 1912 (1913), *Natura*, vol. iv. p. 19, 1913; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 51, 1912.

Equus chapmani wahlbergi, *Trouessart*, *Cat. Mamm.*, Suppl. p. 646, 1905.

Hippotigris wahlbergi, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* p. 304, 1909.

Typical locality Zululand.

46. 6. 2. 76. Skin, mounted, and skull (46. 6. 2. 77–854, *a*), female. Zululand (Kaffraria); collected by Hr. J. Wahlberg. Type. *Purchased* (*Prof. C. J. Sundevall*), 1846.

1. 4. 23. 1 and 2. Two young heads, mounted, referable to this or one of the allied south-eastern races. South-eastern (probably Portuguese) Africa.

Presented by J. Rowland Ward, Esq., 1901.

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* Misspelt *chapmanni* in original notice.

G.—Equus quagga transvaalensis.

Equus burchelli transvaalensis, *Ewart*, *Veterinarian*, vol. lxx, p. 622, 1897, *Zoologist*, ser. 4, vol. ii, p. 49, 1898, *Bull. Soc. Acclim. Paris*, 1898, pp. 309 and 312; *Prazák*, *Wild Horses*, vol. i, pls. xix and xx, 1900; *Elliot*, *Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 102, 1907.

Equus chapmani transvaalensis, *Trouessart*, *Cat. Mamm.*, Suppl. p. 646, 1905.

Hippotigris transvaalensis, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 305, 1909.

Equus quagga transvaalensis, *Griffini*, *Le Zebre*, p. 217, (1912) 1913, *Natura*, vol. iv, p. 19, 1913; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 51, 1912.

Typical locality northern Transvaal.

Type in Edinburgh Museum.

Closely related to *E. q. wahlbergi* (which ranges into the southern Transvaal), but with more or less distinct shadow-stripes on the neck.

H.—Equus quagga selousi.

Equus burchelli selousi,* *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 45, 1897; *Prazák*, *Wild Horses*, vol. i, pl. xxii, 1898; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 291, 1900; *Beddard*, *Cambridge Nat. Hist.*, *Mamm.* p. 246, 1902; *Rothschild*, *Proc. Zool. Soc.* 1906, p. 691; *Elliot*, *Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 102, 1907; *Lydekker*, *Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 198, 1912.

Equus quagga selousi, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902, vol. xiv, p. 316, 1904; *Griffini*, *Le Zebre*, p. 213, 1912 (1913), *Natura*, vol. iv, p. 19, 1913.

Equus tigrinus selousi, *Noack*,† *Zool. Anz.* vol. xxv, pp. 627 and 629, 1902.

Equus chapmani selousi, *Trouessart*, *Cat. Mamm.*, Suppl. p. 646, 1905.

Typical locality Manyami Valley, Mashonaland.

83. 7. 28. 9. Skin, female, mounted. Manyami Valley, Mashonaland; collected by F. C. Selous, Esq. Type. *Purchased*, 1883.

86. 5. 5. 13. Skeleton, mounted. Same locality and collector. *Purchased*, 1886.

* Spelt *selousii* in original.

† Noack considered this race inseparable from the undermentioned *E. q. boehmi*, but used the later name *selousi*.

I.—Equus quagga boehmi.

Equus böhmi, *Matschie, Sitzber. Ges. nat. Freunde*, 1892, p. 131, *Zool. Garten*, vol. xxxv, p. 12, 1894, *Säugeth. Deutsch-Ost.-Afrika*, p. 95, 1895, *Monatshefte naturwiss. Unterricht Schulgatt.* p. 305, 1909; *Beddard, Cambridge Nat. Hist., Mamm.* p. 245, 1902.

Equus burchelli boehmi, *de Winton, Proc. Zool. Soc.* 1898, p. 3; *Prazák, Wild Horses*, pl. xxv, 1898; *Lydekker, Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 198, 1912.

Equus chapmani boehmi, *Trouessart, Cat. Mamm.*, Suppl. p. 605, 1905; *Roux, Rev. Suisse Zool.* vol. xviii, p. 922, 1910.

Equus quagga boehmi, *Griffini, Le Zebre*, p. 206, 1912 (1913), *Natura*, vol. iv, p. 19, 1913.

Typical locality Pangani, German East Africa.

The only race north of the Zambesi retaining more or less distinct remnants of shadow-stripes.

98. 1. 5. 13. Skin. Machakos, southern B. E. Africa.

Presented by S. L. Hinde, Esq., 1898.

3. 2. 21. 2. Skin, mounted, in a recumbent pose. Kilimanjaro district.

Presented by the Hon. Walter Rothschild, 1903.

3. 6. 10. 1 and 2. Two pieces of skin, one with traces of shadow-stripes. Elmenteita Station, B. E. Africa.

Presented by F. C. Selous, Esq., 1903.

J.—Equus quagga zambesiensis.

Equus burchelli zambeziensis, *Prazák, Wild Horses*, vol. i, pl. xvi, 1898; *Trouessart, Bull. Mus. Paris*, 1898, p. 63; *Camerano, Atti Acc. Torino*, vol. xxxvi, p. 613, 1902; *Brasil and Pennetier, Mem. Soc. Linn. Norm.* xxiii, p. 97, 1909, *Bull. Soc. Linn. Norm.* (6) ii, p. 101, 1910.

Equus chapmani zambeziensis, *Trouessart, Cat. Mamm.*, Suppl. p. 646, 1905.

Equus quagga zambeziensis, *Griffini, Le Zebre*, p. 212, (1912) 1913. *Natura*, vol. iv, p. 19, 1913.

Typical locality Barotsiland, north bank of Upper Zambesi.

Type in Paris Museum.

Similar to, but rather larger than the undermentioned *E. q. crawshayi*, with narrower dark stripes, chocolate-brown nose-patch, and no longitudinal dorsal stripe.

K.—Equus quagga crawshayi.

Equus burchelli crawshaii, *de Winton*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xvii, p. 319, 1896.

Equus burchelli crawshayi, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 46, 1897; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 292, 1900; *Ridgeway*, *Thoroughbred Horse*, p. 68, 1905; *Elliot*, *Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 103, 1907; *Lydekker*, *Game Animals of Africa*, p. 58, 1908. *Horse and its Relatives*, p. 199, 1912; *Hilzheimer*, *Abh. Senckenberg. Ges.* vol. xxxi, p. 97, 1912.

Equus tigrinus, *Johnston*, *Brit. Central Africa*, pp. 292 and 297, 1897.

Equus burchelli mariæ, *Prazák*, *Wild Horses*, vol. i, pl. xiii, 1898; subsequently identified by its describer with the present race.

Equus quagga crawshayi, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x. p. 307, 1902; *Griffini*, *Le Zebre*, p. 212, (1912) 1913, *Natura*, vol. iv, p. 19, 1913; *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 55, 1912.

Equus chapmani crawshayi, *Trouessart*, *Cat. Mamm.*, Suppl. p. 969, 1905.

Equus annectens, *Rothschild*, *Proc. Zool. Soc.* 1906, p. 691; identified by *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 56, with the present race.

Equus burchelli annectans, *Lydekker*, *Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 199, 1912.

Equus crawshayi, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 305, 1909.

Equus chapmanni mariæ, *Roux*, *Rev. Suisse Zool.* vol. xviii, p. 925. 1910.

Equus quagga crawshaii, *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 56, 1912.

Equus quagga annectens, *Griffini*, *Le Zebre*, p. 210, (1912) 1913. *Atti Soc. Ital. Sci. Nat.* vol. li, p. 7, pls. x and xi, 1913.

Equus quagga mariæ, *Griffini*, *Le Zebre*, p. 211, (1912) 1913.

Typical locality Henga, Nyasaland, west of Lake Nyasa. *E. annectens*, of which the type is in the Tring Museum, is from North-east Rhodesia; and *E. mariæ* from the district between Lakes Tanganyika and Nyasa. The last-named form appears to be intermediate between *E. q. crawshayi* and *E. q. granti*, and is regarded by some writers as not entitled to separation from the former, and by others from the latter.

95. 12. 12. 1. Skin and skull. Henga, Nyasaland. Type.
Presented by R. Crawshay, Esq., 1895.

96. 1. 29. 2. Skin. Nyasaland.
Presented by Sir Alfred Sharpe, K.C.M.G., C.B., 1896.

96. 1. 29. 3. Skin, young, mounted. Nyasaland.
Same history.

98. 5. 22. 19. Skin. Zomba, Nyasaland.

Same donor, 1898.

98. 5. 22. 20. Skin, young. Same locality. *Same history.*

1. 4. 27. 9. Head, mounted. Nyasaland. The mane is well developed, and the relative narrowness of the neck-stripes, as compared with those of *E. q. granti*, very noticeable.

Presented by Lieut.-Col. A. Manning, 1901.

L.—Equus quagga cuninghamei (Figs. 11, 12).

Equus quagga cuninghamei, *Heller*, *Smithson. Misc. Collect.* vol. lxi. no. 22, p. 3, 1914.

Fig. 11.—Cuninghame's Zebra (*Equus quagga cuninghamei*), Mount Kenia.

From a photograph by Mr. F. A. O. Pym.

Typical locality northern Guaso-nyiro Valley, British East Africa.

Type in U.S. National Museum, Washington. Differs from *E. q. granti* by the darker tint of the light stripes, which are pale ochery buff, and the lighter dark stripes, which are bistre-brown, except on the head, where, like the nose-patch, they are seal-brown; mane well-developed; arrangement of body-stripes as in *E. q. granti* and *E. q. bochmi*,

Fig. 12.—Cuninghame's Zebra (*Equus quagga cuninghamei*), Mount Kenia.

From a photograph by Mr. F. A. O. Pym.

but shadow-stripes completely wanting; the widest stripes are the oblique ones on the quarters, between which and the last of the nine neck-stripes are four stripes extending downwards to join the longitudinal ventral stripe; leg-stripes below knees and hocks snuff-brown, and extending down to hoofs, immediately above which they are fused into a continuous dark area. Skull with the rostral portion shorter than in *E. q. granti* and a shorter diastema. Differs from *E. q. bochmi* not only in the foregoing characters, but likewise by the somewhat inferior bodily stature.

The range of this race, which is a desert type, extends

at least as far north as the northern flank of the Lorogi Mountains and southwards to the northern bank of the Tana.

1. 8. 9. 128. Skin, female. Near Lake Baringo. In the snuff-brown muzzle, seal-brown neck- and body-stripes, and the incomplete fusion of the rings on the pasterns, the specimen accords closely with the description of the present race.

Presented by Sir H. H. Johnston, G.C.M.G., K.C.B., 1901.

M.—Equus quagga granti (Fig. 13).

Equus burchelli granti, *de Winton*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xvii, p. 319, 1896; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 47, 1897; *Prazák*, *Wild Horses*, vol. i, pl. xiv, 1898; *Beddard*, *Cambridge Nat. Hist. Mamm.* 245, 1902; *Ridgeway*, *Thoroughbred Horse*, p. 70, 1905; *Lydekker*, *Game Animals of Africa*, p. 58, 1908, *Horse and its Relatives*, p. 199, 1912; *Cabrera*, *Cat. Met. Mam. Mus. Madrid*, p. 134, 1912.

Equus granti, *Sclater*, *Proc. Zool. Soc.* 1901, vol. ii, p. 593, pl. xxix; *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 305, 1909.

Equus quagga granti, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 306, 1902, vol. xiv, p. 315, 1904; *Griffini*, *Le Zebre*, p. 203 (1912) 1913, *Natura*, vol. iv, p. 19, 1913.

Equus jallæ, *Camerano*, *Atti Acc. Torino*, vol. xxxvii, p. 619, pl. i, 1902.

Equus chapmani granti, *Trouessart*, *Cat. Mamm.*, Suppl. p. 646, 1905; *Roux*, *Rev. Suisse Zool.* vol. xviii, p. 924, 1910.

Equus chapmani jallæ, *Trouessart*, *Cat. Mamm.*, Suppl. p. 646, 1905.

Hippotigris muansæ, *Matschie*, *Weidwerk in Wort und Bild*, 1906, p. 235.

Equus muansæ, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 103, 1909.

Equus goldfinchi, *Ridgeway*, *Nature*, vol. lxxxvi, p. 245, 1911.

Equus burchelli jallæ, *Lydekker*, *Horse and its Relatives*, p. 199, 1912.

Equus quagga jallæ, *Griffini*, *Le Zebre*, p. 206, (1912) 1913, *Natura*, vol. iv, p. 19, 1913.

Equus quagga muansæ, *Griffini*, *Le Zebre*, p. 207, (1912) 1913.

Typical locality Thika-Thika Valley, upper Tana Valley, British East Africa. *Equus jallæ*, from southern Abyssinia, is considered by Roux to be not more than individually different from the present race, and the same view is taken

by Griffini with regard to *E. muansæ*, from the southern shore of the Victoria Nyanza. *E. goldfinchi* is based on an abnormally coloured skin from British East Africa.

72. 10. 13. 1. Skin (flat). Masailand, German East Africa; collected by J. Thomson, Esq. (see *Proc. Zool. Soc.* 1890, p. 413). *Presented by Dr. P. L. Sclater*, 1892.

Fig. 13.—Male Masai Zebra (*Equus quagga granti*).
Formerly in the Gardens of the Zoological Society, Regent's Park, London, supposed to have come from the neighbourhood of Lake Rudolf.
From Sclater, *Proc. Zool. Soc.* 1901, vol. ii, pl. xxix.

94. 1. 2. 1. Skin and skull. Thika-Thika Valley. Type. *Presented by Dr. J. W. Gregory*, 1894.

94. 1. 2. 2. Skin. Njemps, south of Lake Baringo. *Same history.*

3. 1. 17. 1. Skin, mounted. Near Lake Baringo. The mane is but scantily developed, and the backs of the ears are mainly white. *Purchased*, 1903.

10. 1. 13. 1. Skin and skull. Kedong Valley, B. E. Africa. *Presented by Major G. E. Tuson*, 1910.

The following specimens differ from the typical examples of *E. q. granti* by the smaller amount of white on the ears, the brownish muzzle, and the narrower stripes.

0. 3. 18. 4. Skin, with the head and neck separate. Athi Plains, B. E. Africa.
Presented by S. L. Hinde, Esq., 1900.

0. 3. 18. 5. Body-skin, scalp and skull. Same locality. *Same history.*

0. 3. 18. 11. Body-skin. Same locality. *Same history.*

0. 3. 18. 12. Body-skin, young. Same locality. *Same history.*

0. 3. 18. 23. Body-skin, immature. Same locality. *Same history.*

The following name has been applied to a hybrid bonte-quagga, bred in Barnum and Bailey's menagerie (see Pocock, *Field*, vol. cxiv, p. 389, 1909).

"Ward's Zebra," *Ewart, Proc. Zool. Soc.* 1904, vol. ii, p. 181.
Equus wardi. *Ridgeway, Proc. Zool. Soc.* 1909, p. 798, 1910.

VII. EQUUS (HIPPOTIGRIS) FOAI (Fig. 14).

Equus foai, *Prazák and Trouessart, Bull. Mus. Paris*, vol. v, p. 350, 1899; *Ridgeway, Thoroughbred Horse*, p. 64, 1905; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 309, 1909; *Brasil and Pennetier, Aetes Mus. Rouen*, vol. xii, p. 39, 1909; *Lydekker, Game Animals of Africa*, Suppl. p. 4, 1911; *Horse and its Relatives*, p. 209, 1912; *Griffini, Le Zebre*, p. 251, (1912) 1913; *Schwarz. Arch. Naturgesch.* vol. lxxviii, p. 34, 1912.

Typical locality the mountainous district of Angoniland, on the north bank of the Zambesi opposite Teti.

Type in Paris Museum.

Differs from the recognised races of *E.* (*H.*) *quagga* by the larger number of main stripes on the body and hind-quarters, and the absence of any backward bending (except in the last of the series) of the body-stripes as they approach the dorsal stripe, to which they run approximately at right angles. In this respect Foa's zebra approximates to the true zebra and Grévy's zebra, from both of which it differs by the stripes on the hind-quarters adjacent to the dorsal stripe running parallel with the latter in the direction of

the tail, as in the *E. quagga* group, instead of at right angles, so that the "gridiron" pattern of *E. zebra* and the concentric stripe-arrangement of *E. grevyi* in this region are alike wanting. In general build, as well as in the shape of the head and ears, Foa's zebra comes nearest to *E. quagga*, the body-stripes, as in that species, meeting the stripe traversing the

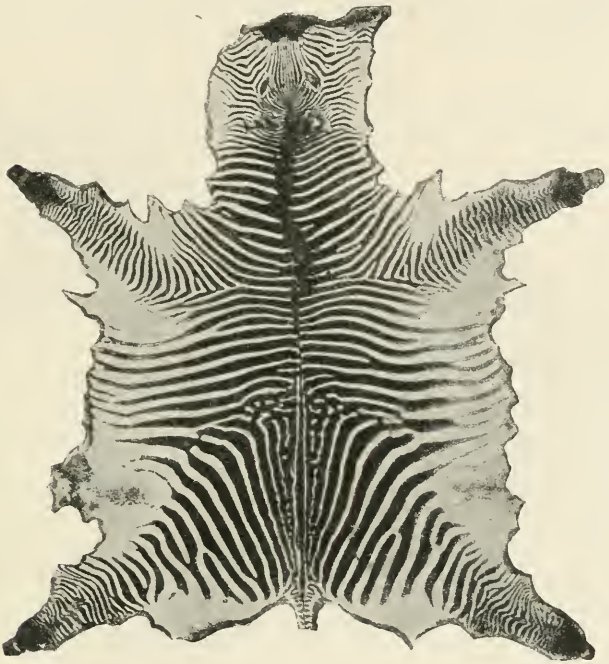

Fig. 14.—Skin of Foa's Zebra (*Equus* [*Hippotigris*] *foai*).
From Lydekker, *The Horse and its Relatives*, 1912, pl. xix, fig. 1.

middle line of the under surface. The legs are striped to the fetlocks, and the pasterns are black.

Whether this zebra really represents a distinct species, or whether it should be regarded as a race of the bonte-quagga, akin to both *E. q. crawshayi* and *E. q. selousi*, may be doubtful.

No specimen in collection.

VIII. EQUUS (HIPPOTIGRIS) ZEBRA (Fig. 15).

Equus zebra, *Linn. Syst. Nat.* ed. 10, vol. i, p. 74, 1758, ed. 12, p. 101, 1766; *Schreber, Säugthiere*, pl. cccxvi, 1790; *F. Cuvier, Hist. Nat. Mamm.* pl. cccxxviii, 1826; *Griffith, Animal Kingdom*, vol. iii, p. 343, vol. v, p. 295, 1827; *Lesson, Nouv. Tabl. Règne Anim., Mamm.* p. 166. 1842; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 414, 1884; *Bocage, J. Sci. Lisboa*, vol. v, p. 23, 1890; *Flower, The Horse*, p. 85, 1891; *Flower and Lydekker, Study of Mammals*, p. 385, 1891; *Nicolls and Eglington, Sportsman in S. Africa*, p. 74. 1892; *Bryden, Nature and*

Fig. 15.—The Mountain Zebra (*Equus* [*Hippotigris*] *zebra*).

Sport in S. Africa, p. 163, 1897, *Great and Small Game of Africa*, p. 92, 1899; *Pocock, Ann. Mag. Nat. Hist.* ser. 6, vol. xx, p. 26, 1897; *Prazák, Wild Horses*, vol. i, pls. ix and x, 1898; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 286, 1900; *Beddard, Cambridge Nat. Hist., Mamm.* p. 244, 1902; *Ridgeway, Thoroughbred Horse*, p. 69, 1905; *Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 103, 1907; *Lydekker, Game Animals of Africa*, p. 61, 1908, *Horse and its Relatives*, p. 211, 1912; *Griffini, Le Zebre*, p. 178, (1912) 1913; *Schwarz, Arch. Naturgesch.* vol. lxxviii, pp. 34 and 40, 1912; *Cabrera, Cat. Met. Mamm. Mus. Madrid*, p. 134, 1912.

Equus indica, *Edwards, Gleanings in Nat. Hist.* vol. i, pl. ccxxii.

1858–64; *Knight*, *Pictorial Mus. Nat. Hist.* figs. 479 and 508, no date.

Equus montanus, *Burchell, Travels in S. Africa*, vol. i, pp. 139 and 265, 1822; *Harris*, *Wild Animals S. Africa*, pl. xxiv, 1840; *Gray*, *Knowsley Menagerie*, pl. lvi, 1850.

Asinus zebra, *Gray*, *Zool. Journ.* vol. i, p. 248, 1825, *List Mamm. Brit. Mus.* p. 183, 1843, *Cat. Ungulata Brit. Mus.* p. 277, 1852, *Cat. Carnivora, etc. Brit. Mus.* p. 276, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 38, 1873; *Brookes*, *Cat. Mus.* p. 20, 1828; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 273, 1862.

Hippotigris zebra, *H. Smith*, *Jardine's Naturalist's Libr.*, *Mamm.* vol. xii, p. 324, pl. xxi, 1841; *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Hippotigris campestris, *Gray*, *Cat. Ungulata Brit. Mus.* p. 277, 1852 ex *H. Smith*, *MS.*

Equus (Asinus) zebra, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902.

ZEBRA.

Typical locality the Drakensberg and other mountain-ranges of Cape Colony.

The type of *Hippotigris* (*vide supra*, p. 19).

A.—Equus zebra zebra.

Equus zebra frederici, *Trouessart*, *Cat. Mamm.* Suppl. p. 646, 1905, *Griffini*, *Le Zebre*, p. 184, fig. 27, (1912) 1913; based on the specimen figured by F. Cuvier, and reputed to have come from the northern part of Cape Colony.

Hippotigris frederici, *Matschie*, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Equus zebra zebra, *Schwarz*, *Arch. Naturgesch.* vol. lxxviii, p. 44, 1912.

Typical locality the Drakensberg or one of the other mountain-ranges of Cape Colony.

* * * *. Skin. South Africa; probably collected and presented by Dr. W. J. Burchell.

† † † †. Skin, young, mounted. South Africa. Entered as *b* in Gray's 1852 Catalogue.

Presented by G. B. Sowerby, Esq.

706, *b*, *f*. Two skulls. South Africa. *Purchased* (*Argent*).

46. 3. 23. 9. Skin and skeleton (46. 3. 23. 10—706, *a*).

Purchased (*Bartlett*), 1846.

47. 1. 27. 1. Skin and skull (47. 1. 27. 2—706, *d*), female. South Africa. *Presented by the Earl of Derby*, 1847.

96. 12. 17. 1. Skin, mounted. Cradock, Cape Colony.

Presented by C. Haseltine, Esq., 1896.

11. 2. 15. 1. Skin, skull, and limb-bones. From an animal born in the London Zoological Gardens.

Presented by the Zoological Society, 1911.

B. Equus zebra hartmannæ.

Equus hartmannæ, *Matschie, Sitzber. Ges. nat. Freunde*, 1898, p. 174.

Equus penricei, *Thomas, Ann. Mag. Nat. Hist.* ser. 7, vol. vi, p. 465, 1900.

Hippotigris hartmannæ, *Camerano, Atti Acc. Torino*, vol. xxxvii, p. 613, 1902; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Hippotigris penricei, *Camerano, Atti Acc. Torino*, vol. xxxvii, p. 613, 1902; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 304, 1909.

Equus zebra hartmannæ, *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902; *Lydekker, Game Animals of Africa*, p. 61, 1908. *Horse and its Relatives*, p. 214, 1912; *Griffini, Le Zebre*, p. 183, (1912) 1913; *Schwarz, Arch. Naturgesch.* vol. lxxviii, p. 43, 1912.

Equus zebra penricei. *Pocock. Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902; *Lydekker, Game Animals of Africa*, p. 61, 1908. *Horse and its Relatives*, p. 214, 1912.

Typical locality between Hoanib and Unilab, German South-west Africa. *E. penricei*, typically from Providencia, Moninho Valley, N.E. of Mossamedes, is regarded by Schwarz as inseparable from the present race.

Type in Berlin Museum.

0. 9. 12. 1. Skin. Providencia, Moninho Valley, N.E. of Mossamedes, Portuguese West Africa; collected by G. W. Penrice, Esq. Type of *E. penricei*. *Purchased* (*Gerrard*), 1900.

4. Subgenus **ASINUS.**

Asinus, *Gray, Zool. Journ.* vol. i, p. 244, 1825, *List Mamm. Brit. Mus.* p. 268, 1843, *Cat. Carnivora, etc. Brit. Mus.* p. 267, 1869; *H. Smith, Jardine's Naturalist's Libr., Mamm.* vol. xx, p. 364, 1841; *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902; *Heller, Smithson. Misc. Collect.* vol. lx, no. 8, p. 2, 1912.

IX. EQUUS (ASINUS) ASINUS.

Equus asinus, *Linn. Syst. Nat.* ed. 10, vol. i, p. 73, 1758, ed. 12, vol. i, p. 100, 1766; *Griffith, Animal Kingdom*, vol. iii, p. 313, vol. v, p. 295, 1827; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 410, 1884; *Flower and Lydekker, Study of Mammals*, p. 383, 1891; *Flower, The Horse*, p. 81, 1891; *Anderson and de Winton, Mamm. Egypt*, p. 392, 1902; *Lydekker, Novit. Zool.* vol. xi, p. 593, 1904, *Game Animals of Africa*, p. 65,

1908, *Horse and its Relatives*, p. 1912; *Pocock*, *Ann. Mag. Nat. Hist.* ser. 8, vol. iv, p. 523, 1909.

Asinus vulgaris, *Gray*, *Zool. Journ.* vol. i, p. 244, 1827. *List Mamm. Brit. Mus.* p. 268, 1843, *Cat. Ungulata Brit. Mus.* p. 268, 1852; *Cat. Carnivora, etc. Brit. Mus.* p. 268, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 36, 1873; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 273, 1862.

Equus (Asinus) asinus, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902.

Ass.

The type (and only) species of the genus, typified by the domesticated ass of Asia.

A.—Equus asinus asinus.

Equus asinus asinus, *Pocock*, *Ann. Mag. Nat. Hist.* ser. 8, vol. iv, p. 527, 1909.

B.—Equus asinus africanus (Fig. 16).

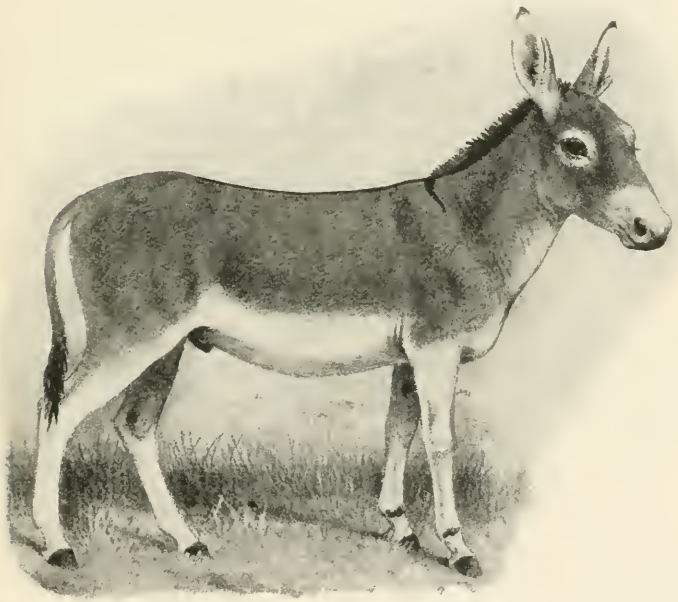

Fig. 16.—Male Nubian Wild Ass (*Equus asinus africanus*), Atbara River, Eastern Sudan.

Presented by the Hon. N. C. Rothschild (4. 6. 12. 1).

From Lydekker, *Novitates Zoologicæ*, vol. xi, 1904, pl. xx.

Asinus africanus, *Fitzinger, Naturgesch. Säugethiere*, vol. iii, p. 667, 1857; *Matschie, Zool. Garten*, vol. xxxv, p. 16, 1894, *Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 106, 1909; *Prazák, Wild Horses*, vol. i, pls. i and ii, 1898.

Equus asinus africanus, *Sclater, Proc. Zool. Soc.* 1884, p. 502, pl. 2; *Forbes, Socotra*, p. 9, pl. ii, 1903; *Lydekker, Novit. Zool.* vol. xi, p. 693, pl. xx, 1904, *Game Animals of Africa*, p. 66, 1908, *Horse and its Relatives*, p. 220. 1912; *Pocock, Ann. Mag. Nat. Hist.* ser. 8. vol. iv, p. 523, 1909; *Griffini, Le Zebre*, p. 16, (1912) 1913.

Equus asinus *var.* africanus, *Flower and Lydekker, Study of Mammals*, p. 383, 1891.

Equus africanus. *Beddard, Cambridge Nat. Hist., Mamm.* p. 243, 1902.

Typical locality Nubia (according to Matschie, Erythræa).

C.—Equus asinus tæniopus.

Asinus tæniopus, *Heuglin, Nova Acta Ac. Cæs. Leop.-Car.* vol. xxviii, pl. i, 1861, *Petermann's Mittheilungen*, 1861, p. 19, *Fauna Rothen Meeres, Peterm. Mittheil.* 1861, pp. 15 and 19, *Proc. Zool. Soc.* 1864, p. 374, *Reise Nord-Ost-Afrika*, vol. ii, p. 91, 1877, *partim; Sclater, Proc. Zool. Soc.* 1862, p. 164; *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306, 1909.

Asinus vulgaris *var.* tæniopus, *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 268, 1869.

Equus tæniopus. *Flower, The Horse*, p. 88, 1891, *partim.*

Equus asinus tæniopus, *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902, ser. 8, vol. iv, p. 529, 1909; *Ridgeway, Thoroughbred Horse*, p. 54, 1905; *Lydekker, Horse and its Relatives*, p. 220, 1912; *Griffini, Le Zebre*, p. 16. (1912) 1913.

Typical locality Hawash district of Abyssinia.

D.—Equus asinus somaliensis.

Equus somaliensis, *Noack, Zool. Garten*, vol. xxv, p. 374, 1884; *Ridgeway, Thoroughbred Horse*, p. 54, 1905.

Asinus somaliensis, *Matschie, Zool. Garten*, vol. xxxv, p. 16, 1894; *Prazák, Wild Horses*, vol. i, pls. iii–v, 1898.

Equus asinus somalicus, *Sclater, Proc. Zool. Soc.* 1884, p. 540, pl. 2, fig. 1, 1892, p. 195; *Swayne, Seventeen Trips to Somaliland*, ed. 2, p, 321, 1900; *Elliot, Field Mus. Zool. Pub.* vol. i, p. 139, 1897, *Cat. Mamm. Field Mus.* (*op. cit.* vol. viii) p. 104, 1907; *Drake-Brockman, Mamm. Somali.* p. 103, 1910.

Equus asinus *var.* somalicus, *Flower and Lydekker, Study of Mammals*, p. 383, 1891.

Equus nubianus somalicus, *Peel, Somaliland*, p. 300, 1900.

Equus somalicus, *Beddard, Cambridge Nat. Hist., Mamm.* p. 244. 1902.

Equus asinus somaliensis, *Pocock, Ann. Mag. Nat. Hist.* ser. 7, vol. x, p. 305, 1902, ser. 8, vol. iv, pp. 524 and 527, 1909; *Lydekker,*

Novit. Zool. vol. iv, p. 595, 1904, *Game Animals of Africa*, p. 66, 1908, *Horse and its Relatives*, p. 220, 1912; *Griffini, Le Zebre*, p. 16, (1912) 1913.

Asinus somalicus, *Matschie, Monatshefte naturwiss. Unterricht Schulgatt.* vol. ii, p. 306. 1909.

Typical locality Berbera district of Somaliland.

86. 1. 25. 9. Skin. Near Berbera; collected by Herr J. Menges. Co-type of *E. a. somalicus.* *Purchased*, 1886.

86. 2. 17. 1. Skin and skeleton. Same locality and collector. Co-type of *E. a. somalicus;* figured *Proc. Zool. Soc.* 1884, pl. iv. *Same history.*

92. 4. 8. 1. Skin. Berbera; collected by Lieut.-Col. H. G. C. Swayne. *Presented by Dr. P. L. Sclater*, 1892.

93. 6. 26. 1. Skin, mounted. Shebeli Valley, Somaliland. *Presented by Lieut.-Gen. Sir A. H. Paget, K.C.B.*, 1893.

Family II.—TAPIRIDÆ.

Genus TAPIRUS.

Tapirus, *Brisson, Règne Animal*, p. 118, 1756; *Cuvier, Tabl. Elém. Hist. Nat.* p. 152, 1798; *Parker, Proc. Zool. Soc.* 1882, p. 775; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 381, 1884; *Flower, The Horse*, p. 43, 1891.

Tapir, *Blumenbach, Handbuch Naturgeschichte*, vol. i, p. 129, 1779; *Zimmermann, Geogr. Geschichte*, vol. ii, p. 153, 1780; *Gmelin, Linn.'s Syst. Nat.* vol. i, p. 216, 1788; *Griffith, Animal Kingdom*, vol. iii, p. 339, vol. v, p. 293, 1827.

Tapyra, *Liais. Climats Geol.* p. 397, 1872.

1. Subgenus ACROCODIA.

Rhinochœrus, *Wagler, Syst. Nat. Amphib.* p. 19, 1830, *partim* (invalid, *teste* Goldman); *Gray, Proc. Zool. Soc.* 1867, p. 884, *Cat. Carnivora, etc. Brit. Mus.* p. 259, 1869.

Acrocodia, *Goldman, Proc. Biol. Soc. Washington*, vol. xxvi, p. 65, 1913.

1. TAPIRUS (ACROCODIA) INDICUS.

Tapirus indicus, *Desmarest, Nouv. Dict. Hist. Nat.* vol. xxxii, p. 458, 1819, *Mammalogie*, vol. ii, p. 411, 1822; *F. Cuvier, Hist. Nat. Mamm.* pl. ccciii. 1825; *Giebel, Säugethiere*, p. 183, 1855; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 383, 1884; *Flower, The Horse*, p. 46, 1891; *Flower and Lydekker, Study of Mammals*, p. 371, 1891; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 198, 1891; *Blanford, Fauna Brit. India, Mamm.* p. 478,

1891; *Lydekker, Great and Small Game of India, etc.* p. 31, 1900, *Game Animals of India, etc.* p. 40, 1907; *Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 101, 1907; *Beddard, Proc. Zool. Soc.* 1909, p. 161, *Cambridge Nat. Hist., Mamm.* p. 252, 1902; *Pocock, Proc. Zool. Soc.* 1909, p. 418; *Lönnberg. Arkiv Zool.* vol. vi, no. 15, 1910.

Tapirus sumatranus, *Gray, Med. Repository*, 1821.

Tapirus malayanus. *Raffles, Trans. Linn. Soc.* vol. xiii, p. 270, 1822: *Horsfield, Zool. Researches, Java*, pls. 1824; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 246, pl. xxx, 1837; *Cantor, Journ. Asiat. Soc. Bengal*, vol. xv, p. 263, 1846; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 276, 1862; *Blyth, Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 135, 1863, *Cat. Mamm. Birds, Burma*, p. 49. 1875; *Sterndale, Mamm. India*, p. 404, 1885.

Tapir malayanus, *Griffith, Animal Kingdom*, vol. v, p. 294, 1827.

Tapirus bicolor, *Wagner, Schreber's Säugthiere*, vol. vi, p. 400, 1835.

Rhinochœrus sumatranus, *Gray, Proc. Zool. Soc.* 1867, p. 884, *Cat. Carnivora, etc. Brit. Mus.* p. 260, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 85, 1873.

Acrocodia indica, *Goldman, Proc. Biol. Soc. Washington*, vol. xxvi. p. 65, 1913.

Malay Tapir.

Type of *Rhinochœrus* and *Acrocodia*.

Typical locality Malay Peninsula.

710, *a*. Skeleton, mounted. Sumatra. Belonged to an animal presented by Sir J. Stamford Raffles to the Zoological Society, and originally mounted in the skin of the same individual (*a* of Gray's 1843 *List* and 110 *a* of his 1873 *Hand-List*), which was destroyed in 1873.

Purchased (*Zoological Society*).

51. 11. 10. 38 (710, *c*). Skull. Locality unknown.

Purchased (*Zoological Society*), 1851.

55. 12. 26. 150 (710, *b*). Skull. Locality unknown.

Purchased (*Zoological Society*), 1855.

73. 7. 3. 7. Skin, mounted. Locality unknown.

Purchased (*Gerrard*), 1873.

74. 4. 8. 1. Skin, young, mounted. Locality unknown.

Same history, 1874.

79. 11. 21. 180. Skull. Probably Sumatra; collected by Sir J. Stamford Raffles.

Transferred from India Museum, 1879.

12. 4. 28. 1. Skin and skeleton. Taiping, Perak.

Presented by the Taiping Museum, 1912.

12. 9. 16. 1. Skin, mounted. Taiping, Perak.

Presented by H. C. Robinson, Esq., 1912.

2. Subgenus **TAPIRUS.**

Tapirus, *Brisson, op. cit., partim; Gray, Proc. Zool. Soc.* 1867, p. 870, *Cat. Carnivora, etc. Brit. Mus.* p. 254, 1869; *Flower and Lydekker, Study of Mammals*, p. 371, 1891, *partim; Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 101, 1907.

Cinchacus, *Gray, Hand-List Thick-skinned Mamm. Brit. Mus.* p. 34, 1873.

Chinchecus, *Trouessart, Cat. Mamm.* p. 769, 1898, *errorim.*

II. TAPIRUS TERRESTRIS.

Hippopotamus terrestris, *Linn., Syst. Nat.* ed. 10, vol. i, p. 174, 1758.

Hydrochœrus tapir, *Erxleben, Syst. Regn. Anim.* p. 191, 1777.

Tapir anta, *Zimmermann, Geogr. Geschichte*, vol. ii, p. 154, 1786.

Tapirus americanus, (?) *Gmelin, Linn.'s Syst. Nat.* vol. i, p. 216, 1788; *Cuvier, Règne Animal*, vol. i, p. 242, 1817, *Ossemens Fossiles*, ed. 3, vol. iii, p. 277, 1823; *Wied, Beiträge Naturgesch. Brasil.* vol. ii, p. 549, 1826; *Rengger, Säugeth. Paraguay*, p. 312, 1830; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 241, pl. xxviii, 1837; *Tschudi, Fauna Peru., Therol.* p. 213, 1844; *Sclater, Quart. Journ. Sci.* vol. ii, p. 621, pl. viii, 1865; *Pelzeln, Verk. Zool.-Bot. Ges. Wien*, Beiheft, 1883, p. 86; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 384, 1884; *Flower, The Horse*, p. 46, 1891; *Flower and Lydekker, Study of Mammals*, p. 371, 1891; *Ameghino, An. Mus. Nac. Buenos Aires*, vol. xx, p. 1, 1909; *Schlüter, Entwicklung Schädel Tapirus americanus*, 1910; *Scharff, Development of Life in America*, p. 352, 1910; *Kathariner, Naturwiss. Wochenschrift*, ser. 2, vol. xiii, p. 422, 1914.

Tapirus suillus, *Blumenbach, Handbuch Naturgesch.* p. 120, 1791; *Wagner, Schreber's Säugthiere*, Suppl. vol. iv, p. 294, 1844; *Burmeister, Thiere Brasil.* vol. i, p. 331, 1854, *Descrip. Phys. Repub. Argent.* vol. iii, p. 486, 1879.

Tapir americanus, *Griffith, Animal Kingdom*, vol. iii, p. 340, vol. v, p. 293, 1827.

Tapirus terrestris, *Gray, List Mamm. Brit. Mus.* p. 184, 1843, *Proc. Zool. Soc.* 1867, p. 877, *Cat. Carnivora, etc. Brit. Mus.* p. 254, 1869, *Proc. Zool. Soc.* 1872, p. 492, pl. xxii, fig. 3, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 33, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 275, 1862; *Hatcher, Amer. J. Sci.* 1896, vol. i, p. 174, pls. iv and v; *Lydekker, Great and Small Game of Europe, etc.* p. 383, 1901; *Beddard, Cambridge Nat. Hist., Mamm.* p. 251, 1902; *Osgood, Field Mus. Zool. Pub.* vol. x, p. 46, 1912.

Tapirus ecuadorensis, *Gray, Proc. Zool. Soc.* 1872, p. 402, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 34, 1873.

Tapirus tapirus, *Palmer* (ex *Brisson*), *Index Genera Mamm.* p. 663, 1904; *Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 101, 1907; *Cabrera, Cat. Met. Mam. Mus. Madrid*, p. 134, 1912.

TAPIR; BRAZILIAN TAPIR.

Type of genus.
Typical locality Brazil or Paraguay.

A.—Tapirus terrestris terrestris.

Typical locality Brazil or Paraguay.
General characters those of the species.

38, *a*. Skin, immature, mounted. Locality unknown. The reference of this and other specimens, of which the place of origin is unknown, to the present race, is provisional.
Presented by the Royal College of Surgeons.

709, *h*. Skeleton, young. Locality unknown.
No history.

42. 4. 10. 1 (38, *b*). Skin, young, mounted. Locality unknown. *Purchased* (*Tucker*), 1842.

42. 6. 20. 1 (709, *e*). Skull. Rio de Janeiro, Brazil.
Presented by J. Miers, Esq., 1842.

43. 2. 1. 57 (709, *b*). Skull, Berbice, British Guiana.
Purchased (*Scrivener*), 1843.

47. 4. 6. 1 (709, *d*). Skeleton. Brazil.
Purchased (*Becker*), 1847.

55. 12. 26. 151 (709, *e*). Skull, immature. Demerara; collected by Sir R. Schomburgk.
Purchased (*Zoological Society*), 1855.

55. 12. 26. 152 (709, *f*). Skull, young. Locality unknown. *Purchased* (*Zoological Society*), 1855.

56. 1. 12. 5 (38, *f*). Skin, young, mounted. Locality unknown. Figured by Gray, *Proc. Zool. Soc.* 1872, pl. xvii, fig. 3. *Purchased* (*Stevens*), 1856.

72. 6. 4. 1 (709, *m*). Skull. Surinam; collected by Mr. E. Bartlett. *Purchased*, 1872.

82. 9. 30. 21 (709, *p*). Skull. Taquara, Rio Grande do Sul, Brazil; collected by Dr. H. von Ihering.
Purchased, 1882.

82. 9. 30. 22–23 (709, *q* and *r*). Two skulls, female. Same locality and collector. *Same history.*

84. 2. 8. 15 (709, *s*). Skull. Same locality and collector.
Purchased, 1884.

84. 2. 8. 16 (709, *t*).

11. 11. 12. 1. Skin, mounted, and skull. Brazil. *Purchased* (*R. Ward*), 1911.

B.—Tapirus terrestris laurillardi.

Tapirus laurillardi, *Gray*, *Proc. Zool. Soc.* 1867, p. 881. *Cat. Carnivora, etc. Brit. Mus.* p. 256, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 34, 1873.

Tapirus americanus laurillardi, *Hagmann*, *Archiv Rassen- und Gesell.-Biol.* vol. v, p. 24, 1908 (by inference from text).

Typical locality Venezuela (?).

52. 12. 9. 3. (709, *g*). Skull. Venezuela (?). Type. *Purchased* (*Brandt*), 1852.

C.—Tapirus terrestris mexianæ.

Tapirus americanus *var.* mexianæ, *Hagmann*, *Archiv Rassen- und Gesell.-Biol.* vol. v, p. 22, 1908.

Typical (and only) locality Mexiana Island, mouth of the Amazons.

Distinguished from typical race by contour of profile of nasal region of skull, which lacks the marked depression at the root of the nasals in the latter, and by differences in the form and relations of some of the cranial bones; bodily size smaller.

No specimen in collection.

D.—Tapirus terrestris spegazzinii.

Tapirus spegazzinii, *Ameghino*, *Ann. Mus. Nac. Buenos Aires*, vol. xx, p. 31, 1909.

Typical locality Tucuman, Argentina.

Type in Buenos Aires Museum.

Based on an immature skull, which differs from adult skulls of the typical race by the much shorter and relatively wider nasal bones.

III. TAPIRUS ROULINI.

Tapir pinchaque (native name), *Roulin, Ann. Sci. Nat.* vol. xvii, p. 107, 1829; *Gondot, C.-R. Ac. Sci. Paris*, vol. xvi, p. 331. 1843.

Tapirus roulini, *Fischer, Synop. Mamm.* p. 606, 1829; *Giebel, Säugethiere*, p. 182, 1855; *Sclater, Proc. Zool. Soc.* 1878, p. 631, pl. xxxix; *Flower, The Horse*, p. 46, 1891; *Flower and Lydekker. Study of Mammals*, p. 371, 1891; *Hatcher, Amer. J. Sci.* 1896. vol. i, p. 173, pls. iv and v; *Lydekker, Great and Small Game of Europe, etc.* p. 389, 1901; *Beddard, Cambridge Nat. Hist., Mamm.* p. 251, 1902.

Tapirus villosus, *Wagner, Schreb. Säugth. VI*, p. 392, 1835, *Supp. iv*, p. 294, 1844, *Tschudi, Faun. Peruana*, p. 213, 1844.

Tapirus pinchacus, *Blainville, Ostéographie, Genus Tapirus*, pls. i–v; *Gray, Proc. Zool. Soc.* 1867, p. 884, *Cat. Carnivora. etc. Brit. Mus.* p. 259, 1869.

Tapirus pinchaque, *Trouessart, Cat. Mamm.* p. 769, 1893.

Tapirus leucogenys, *Gray, Proc. Zool. Soc.* 1872, p. 488, pl. xxi. *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 34, 1873.

Tapirus enigmaticus, *Gray, Proc. Zool. Soc.* 1872, p. 490; *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 34, 1873.

Roulin's Tapir.

Type, as represented by *T. leucogenys*, of subgenus *Cinchacus*.

Typical locality Bogotá, Colombia.

72. 1. 24. 3–4 (1577, *b*). Adult male, mounted, and skull. Assuay, Ecuador; collected by Clarence Buckley. Type of *T. leucogenys*, Gray. *Purchased*, 1872.

72. 1. 24. 5–6 (1577, *a*). Female. *Same history.*

72. 1. 24. 7–8 (1577, *d*). Young. *Same history.*

72. 1. 24. 1–2 (1577, *c*). Immature female, mounted, and skeleton. Suñac, Ecuador; collected by Clarence Buckley. *Purchased*, 1872.

72. 1. 24. 9–10 (1577, *f*). Young. Type of *T. enigmaticus*, Gray. *Same history.*

72. 1. 24. 11 (1577, *e*). Young skin, and skeleton. *Same history.*

3. Subgenus **TAPIRELLA.**

Elasmognathus, *Gill, Proc. Ac. Sci. Philad.* 1865, p. 183; *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 261, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 35. 1873; *Flower, The Horse*, p. 46, 1891; nec *Fischer*, 1844.

Tapirella, *Palmer, Science*, ser. 2, vol. xvii, p. 873, 1903.

IV. TAPIRUS (TAPIRELLA) BAIRDI.

Elasmognathus bairdii, *Gill*, *Proc. Ac. Sci. Philad.* 1865, p. 183, *Amer. J. Sci.* vol. xliii, p. 370, 1865; *Verrill*, *Amer. J. Sci.* vol. xliv, p. 126, 1866; *Dow*, *Proc. Zool. Soc.* 1867, p. 241; *Gray*, *Proc. Zool. Soc.* 1867, p. 885, pl. xlii, *Cat. Carnivora, etc. Brit. Mus.* p. 261, 1863, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 35, 1873; *Alston*, *Proc. Zool. Soc.* 1872, p. 666, *Biol. Centr.-Amer., Mamm.* p. 101, pl. viii, figs. 1 and 2, 1882; *Hatcher*, *Amer. J. Sci.* 1896, vol. 1, p. 175, pls. iv and v.

Tapirus bairdi, *Flower*, *Proc. Zool. Soc.* 1867, p. 240, *The Horse*, p. 46, 1891; *Sclater*, *Proc. Zool. Soc.* 1871, p. 626, pl. i, 1874, p. 89; *Alston*, *Biol. Centr.-Amer., Mamm.* p. 101, pl. viii, figs. 1 and 2, 1882; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 385, 1884; *Flower and Lydekker*, *Study of Mammals*, p. 371, 1891; *Lydekker*, *Great and Small Game of Europe, etc.* p. 390, 1901; *Beddard*, *Cambridge Nat. Hist., Mamm.* p. 251, 1902.

Tapirus americanus, *Moore*, *Proc. Zool. Soc.* 1859, p. 51, nec *Cuvier*.

Tapirus (Elasmognathus) bairdi, *J. C. Merriam*, *Univ. Calif. Bull. Dep. Geol.* vol. vii, p. 175, 1913.

Tapirella bairdi, *Palmer*, *Science*, ser. 2, vol. xvii, p. 873, 1903; *Elliot*, *Mamm. Mid. Amer.* (*Field Mus. Zool. Pub.* vol. iv) p. 87, 1904.

Baird's Tapir.

Type of *Elasmognathus* and *Tapirella*.

Typical locality, Panama: the range extends northwards to southern Mexico.

67. 8. 31. 1. (1500, *b*). Immature, mounted, and skull. Veragua; collected by O. Salvin, Esq. *Purchased*, 1867.

68. 3. 21. 22 (1500, *c*). Young skin, and skeleton. Same locality and collector. *Purchased*, 1868.

71. 10. 20. 6 (1500, *d*). Young, mounted, and skeleton. Nicaragua. *Purchased* (*Zoological Society*), 1871.

75. 2. 26. 16. Fœtus in spirit. Coban, Guatemala; collected by O. Salvin, Esq. *Purchased*, 1875.

79. 9. 17. 1 (1500, *f*). Skull. Costa Rica. *Purchased*, 1879.

79. 9. 17. 2 (1500, *h*). Skeleton, female. Pacuar, Atlantic coast of Costa Rica; collected by J. J. Cooper. *Purchased*, 1879.

86. 11. 12. 1 (1500, *g*). Skull. British Honduras. *Presented by Dr. von Twyl*, 1886.

V. TAPIRUS (TAPIRELLA) DOWI.

Elasmognathus dowi, *Gill, Amer. J. Sci.* vol. 1, p. 142, 1870; *Alston, Proc. Zool. Soc.* 1879, p. 666, *Biol. Centr.-Amer., Mamm.* p. 104, pl. viii, figs. 3–5 and ix; *Hatcher, Amer. J. Sci.* 1896, vol. i, p. 175.

Tapirus dowi, *Sclater, Proc. Zool. Soc.* 1882, p. 391, pl. xxiii; *Flower, The Horse*, p. 46, 1891; *Flower and Lydekker, Study of Mammals*, p. 371, 1891; *Lydekker, Great and Small Game of Europe, etc.* p. 391, 1901; *Beddard, Cambridge Nat. Hist., Mamm.* p. 251, 1902.

Tapirella dowi, *Palmer, Science*, ser. 2, vol. xvii, p. 873, 1903; *Elliot, Mamm. Mid. Amer.* (*Field Mus. Zool. Pub.* vol. iv) p. 88, 1904.

Dow's Tapir.

Typical locality Guatemala: the range also includes Nicaragua.

67. 6. 24. 2 (1500, *a*). Skull. Volcan Viejo, Nicaragua. Collected by Capt. J. Dow.

Presented by Dr. P. L. Sclater, 1867.

72. 7. 26. 1 (1500, *c*). Immature, mounted. Corinto, west coast of Nicaragua.

Purchased (*Zoological Society*), 1872.

Family III.—RHINOCEROTIDÆ.

Genus RHINOCEROS.

Rhinoceros, *Linn., Syst. Nat.* ed. 10, vol. i, p. 56, 1758, ed. 12, vol. i, p. 104, 1766; *Flower, Proc. Zool. Soc.* 1876, p. 454, *The Horse*, p. 56, 1891; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157.

1. Subgenus RHINOCEROS.

Rhinoceros, *Linn., op. cit., partim; Flower, Proc. Zool. Soc.* 1876, p. 454, *The Horse*, p. 56, 1891; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 416, 1884; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 265, 1900; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157.

Eurhinoceros, *Gray, Proc. Zool. Soc.* 1867, p. 1009.

Skin thrown into heavy folds; one horn;* front teeth fully developed; skull short, with the occipital plane much

* The alleged existence of a two-horned species allied to *R. unicornis* in the Singpho district, east of Assam, is noticed in *Game Animals of India*, p. 32.

inclined forwards, and the auditory meatus closed inferiorly by the fusion of the post-tympanic with the post-glenoid process.

Asiatic.

I. RHINOCEROS UNICORNIS (Fig. 17).

Rhinoceros unicornis, *Linn., Syst. Nat.* ed. 10, vol. i, p. 56, 1758, ed. 12, vol. i, p. 104, 1766; *Hodgson, Proc. Zool. Soc.* 1834, p. 98;

Fig. 17.—Head of a Great Indian Rhinoceros (*Rhinoceros unicornis*).

Shot by H.M. King George V. in Nepal in 1911, and presented by His Majesty in 1913 (13. 10. 19. 1).

Gray, List Mamm. Brit. Mus. p. 186, 1843, *Proc. Zool. Soc.* 1867, p. 1010, *Cat. Carnivora, etc. Brit. Mus.* 302, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 46, pls. xiv and xv, 1873;

Gerrard, Cat. Bones Mamm. Brit. Mus. p. 281, 1862; *Sclater, Proc. Zool. Soc.* 1871, p. 8, *Trans. Zool. Soc.* vol. ix, p. 645, pl. xiv, 1876; *Flower, Proc. Zool. Soc.* 1876, p. 454, *The Horse*, p. 56, 1891; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 416, 1884; *Flower and Lydekker, Study of Mammals*, p. 404, 1891; *W. L. Sclater, Cat. Mamm. Ind. Mus.* p. 202, 1891; *Blanford, Fauna Brit. India*, p. 472, 1891; *Lydekker, Horns and Hoofs*, p. 378, 1893, *Great and Small Game of India, etc.* p. 18, 1909, *Game Animals of India, etc.* p. 26, 1907, Suppl. p. 2, 1911, *Cat. Hume Bequest Brit. Mus.* p. 41, 1913; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157; *Ward, Records of Big Game*, ed. 6, p. 463, 1910, ed. 7, p. 462, 1914; *Marx and Koch, Ber. Senckenberg. Ges.* vol. xli, p. 161, 1910.

Rhinoceros indicus, *Cuvier, Menag. Mus. Hist. Nat. Paris*, 1801, *Règne Animal*, vol. i, p. 237, 1817, *Griffith, Animal Kingdom*, vol. iii, p. 336, vol. v, p. 290, 1827; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 164, pls. viii and ix, 1837; *Schinz, Synop. Mamm.* p. 333, 1844; *Blyth, Journ. Asiat. Soc. Bengal*, vol. xxx, p. 194, 1861, vol. xxxi, p. 151, 1862, *Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 136, 1863; *Jerdon Mamm. India*, p. 232, 1867; *Lydekker, Journ. Asiat. Soc. Bengal*, vol. xlix, p. 135, pl. vii, 1880; *Sterndale, Mamm. India*, p. 407, 1884; *Percy, Big Game Shooting* (*Badminton Libr.*), vol. ii, p. 234, 1894; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 265, 1900; *Beddard, Cambridge Nat. Hist., Mamm.* p. 255, 1902.

Rhinoceros asiaticus, *Blumenbach, Handbuch Naturgesch.* ed. 12, p. 107, 1830.

Rhinoceros (Eurhinoceros) unicornis, *Gray, Proc. Zool. Soc.* 1867, p. 1009.

Rhinoceros stenocephalus, *Gray, Proc. Zool. Soc.* 1867, p. 1018, *Cat. Carnivora, etc. Brit. Mus.* p. 310, 1869.

Great Indian Rhinoceros; Gainda.

Type of genus and of *Eurhinoceros*.

Typical locality probably the sub-Himalayan Tarai of Assam.

II. RHINOCEROS SONDAICUS.

Rhinoceros sondaicus, *Desmarest, Mammalogie*, vol. ii, p. 399, 1822; *Horsfield, Zool. Research. Java*, 1824, with pl.; *Griffith, Animal Kingdom*, vol. v, p. 291, 1827; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 174, pl. x, 1837; *Müller and Schlegel, Verh. Nat. Gesch. Nederland. Ind.* vol. i, p. 184, pl. xxxiii, 1844; *Blyth, Journ. Asiat. Soc. Bengal*, vol. xxxi, p. 151, 1862; *Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 137, 1863, *List Mamm. Birds Burma*, p. 50, 1875; *Jerdon, Mamm. India*, p. 234, 1867; *Sclater, Proc. Zool. Soc.* 1874, p. 182, pl. xxviii, *Trans. Zool. Soc.* vol. ix, p. 649, pl. xcvi, 1876; *Fraser, Journ. Asiat. Soc. Bengal*, vol. xliv, p. 10, pl. v, 1875; *Flower, Proc. Zool. Soc.* 1876, p. 454, *The Horse*, p. 58, 1891; *Ball, Proc. Asiat. Soc. Bengal*, 1877, p. 170; *Rainey, ibid*, 1878, p. 139; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 418, 1884;

Sterndale, Mamm. India, p. 410, 1885; *Flower and Lydekker, Study of Mammals*, p. 405, 1891; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 202, 1891; *Blanford, Fauna Brit. India, Mamm.* p. 475, 1891; *Lydekker, Horns and Hoofs*, p. 381, 1893, *Great and Small Game of India, etc.* p. 25, 1900, *Game Animals of India, etc.* p. 34, 1907; *Percy, Big Game Shooting* (*Badminton Libr.*), vol. ii, p. 234, 1894; *Jentink, Notes Leyden Mus.* vol. xvi, p. 231, 1894; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 265, 1900; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157; *Beddard, Cambridge Nat. Hist., Mamm.* p. 256, 1902; *Ward, Records of Big Game*, ed. 6, p. 65, 1913, ed. 7, p. 64, 1914.

Rhinoceros javanicus, *F. Cuvier, Hist. Nat. Mamm.* vol. iv, livr. 45, pl. 309, 1824; *Gray, Proc. Zool. Soc.* 1867, p. 1009, *Cat. Carnivora, etc. Brit. Mus.* p. 300, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 45, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 281, 1862.

Rhinoceros inermis, *Lesson, Hist. Nat. Anim.* vol. i, p. 514, 1848; *Peters, Monatsber. Ak. Berlin*, 1877, p. 68, pls. i–iii.

Rhinoceros nasalis, *Gray, Proc. Zool. Soc.* 1867, p. 1012, *Cat. Carnivora, etc. Brit. Mus.* p. 304, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 47, 1873.

Rhinoceros floweri, *Gray, Proc. Zool. Soc.* 1867, p. 1015, *Cat. Carnivora, etc. Brit. Mus.* p. 304, 1869.

2. Subgenus **DICERORHINUS.**

Dicerorhinus, *Gloger, Handbuch Naturgesch.* p. 125, 1841; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157.

Ceratorhinus, *Gray, Proc. Zool. Soc.* 1867, p. 1021; *Flower, Proc. Zool. Soc.* 1876, p. 443, *The Horse*, p. 58, 1891; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 421, 1884; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 365, 1900.

Skin with heavy folds; front teeth fully developed; skull generally as in typical subgenus, but with an open groove below the auditory meatus, due to the wide separation of the post-tympanic from the post-glenoid process. Asiatic.

III. RHINOCEROS (DICERORHINUS) SUMATRENSIS.

Rhinoceros sumatrensis, *Cuvier, Règne Animal*, vol. i, p. 240, 1817; *Griffith, Animal Kingdom*, vol. iii, p. 336, 1827; *Sclater, Proc. Zool. Soc.* 1872, p. 700, pl. lxvii, *Trans. Zool. Soc.* vol. ix, p. 650, pl. xcvii, 1876; *Anderson, Proc. Zool. Soc.* 1872, p. 120; *Bartlett, ibid.* 1873, p. 104, pl. xi; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 418, 1884; *Beddard and Treves, Proc. Zool. Soc.* 1889, p. 7; *Flower, The Horse*, p. 58, 1891; *Flower and Lydekker, Study of Mammals*, p. 406, 1891; *W. L. Sclater,*

Cat. Mamm. Ind. Mus. pt. ii, p. 204, 1891; *Blanford, Fauna Brit. India, Mamm.* p. 476, 1891; *Lydekker, Horns and Hoofs*, p. 382, 1893. *Great and Small Game of India, etc.* p. 27, 1900, *Game Animals of India, etc.* p. 36, 1907; *Beddard, Cambridge Nat. Hist., Mamm.* p. 256, 1902; *Elliot, Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 105, 1907; *Cabrera, Bol. Soc. españ. Hist. Nat.* 1911, p. 141.

Rhinoceros sumatranus, *Raffles. Trans. Linn. Soc.* vol. xiii, p. 268. 1820; *Desmarest, Mammalogie*, vol. ii, p. 401, 1822; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 179, pl. xi, 1837; *Müller and Schlegel, Verh. Nat. Gesch. Nederland. Ind.* vol. i, p. 190, pl. xxxiv, 1840; *Blyth, Journ. Asiat. Soc. Bengal*, vol. xxxi, p. 151, 1862, *Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 137, 1863; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 282, 1862; *Gray. Ann. Mag. Nat. Hist.* ser. 4, vol. x, p. 208, 1872.

Rhinoceros sondaicus, *F. Cuvier, Hist. Nat. Mamm.* livr. 47. pl. cccviii, 1825, nec *Desmarest*, 1822.

Rhinoceros bicornis sumatrensis, *Griffith, Animal Kingdom.* vol. v. p. 291, 1827.

Dicerorhinus sumatrensis, *Gloger, Handbuch Naturgesch.* p. 125. 1841; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 157.

Ceratorhinus sumatranus, *Gray, Proc. Zool. Soc.* 1867, p. 1021, *Cat. Carnivora, etc. Brit. Mus.* p. 313, 1867, *Ann. Mag. Nat. Hist.* ser. 4, vol. xi, p. 357, 1873, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 47, 1873.

Ceratorhinus sumatrensis, *Garrod, Proc. Zool. Soc.* 1873, p. 92; *Blyth, Cat. Mamm. and Birds Burma*, p. 52, 1875; *Flower. Proc. Zool. Soc.* 1876, p. 455, 1880, p. 69; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 365, 1900.

Rhinoceros, *vel* Ceratorhinus, sumatrensis, *Sterndale, Mamm. India.* p. 412, 1885.

Rhinoceros (Ceratorhinus) sumatreusis, *Ward, Records of Big Game*, ed. 6, p. 466, 1910, ed. 7, p. 465. 1914.

Typical locality Sumatra.

A.—Rhinoceros sumatrensis sumatrensis.

Rhinoceros sumatrensis typicus, *Lydekker, Great and Small Game of India, etc.* p. 28, 1900.

B.—Rhinoceros sumatrensis blythi.

Ceratorhinus niger, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. xi, p. 357, 1873, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 48, 1873, *nec* Rhinoceros niger, *Schinz*, 1845.

Ceratorhinus crossii, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. x. p. 209. 1872, *nec* 1854.

Ceratorhinus blythi, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. xi, p. 360, 1873, *Hand-List Mamm. Brit. Mus.* p. 50, 1873.

Rhinoceros sumatrensis niger, *Lydekker, Game Animals of India, etc.* p. 39, 1907.

Typical locality Tenasserim.

Type in Indian Museum, Calcutta.

C. niger is typified by a specimen from the Malay Peninsula referred to below; *C. blythi* by skulls from Tenasserim figured by Blyth, *Journ. Asiat. Soc. Bengal*, vol. xxxi, pl. iii, figs. 2 and 3, as *R. sumatranus*, and now in the Indian Museum. These skulls, together with a third one from the same district (figured by Blyth *op. cit.*, fig. 1, and identified by Gray with his *C. niger*), are entered in W. L. Sclater's *Catalogue*, without mention of their being types.

C.—Rhinoceros sumatrensis lasiotis.

(?) Rhinoceros crossei, *Gray*, *Proc. Zool. Soc.* 1854, p. 251; *Blyth*, *Proc. Zool. Soc.* 1861, p. 307, *Journ. Asiat. Soc. Bengal*, vol. xxxi, p. 156, 1862; *Gerrard*, *Cat. Bones Mamm. Brit. Mus.* p. 282, 1862.

(?) Ceratorhinus crossei, *Blyth*, *Ann. Mag. Nat. Hist.* ser. 4, vol. x, p. 399, 1872, *Cat. Mamm. Birds Burma*, p. 52, 1875, *partim.*

Rhinoceros lasiotis, *Sclater*, *Proc. Zool. Soc.* 1872, p. 493, pl. xxiii, *Trans. Zool. Soc.* vol. ix, p. 652, pl. xcviii, 1876; *Flower*, *Proc. Zool. Soc.* 1878, p. 634; *Flower and Lydekker*, *Study of Mammals*, p. 406, 1891; *W. L. Sclater*, *Cat. Mamm. Ind. Mus.* pt. ii, p. 204, 1891; *Lydekker*, *Horns and Hoofs*, p. 384, 1893.

Ceratorhinus lasiotis, *Flower*, *Proc. Zool. Soc.* 1876, p. 455.

Rhinoceros, *vel* Ceratorhinus (crossi ?) lasiotis, *Sterndale*, *Mamm. India*, p. 411, 1885.

Rhinoceros sumatrensis lasiotis, *Lydekker*, *Great and Small Game of India*, *etc.* p. 27, 1900, *Game Animals of India*, *etc.* p. 38, 1907; *Ward*, *Records of Big Game*, ed. 6, p. 466, 1910, ed. 7, p. 465, 1914.

Dicerorhinus sumatrensis lasiotis, *Thomas*, *Proc. Zool. Soc.* 1901, vol. ii, p. 157.

Typical locality Chittagong.

3. Subgenus **DICEROS.**

Diceros, *Gray*, *Med. Repository*, vol. xv, p. 306, 1821; *Thomas*, *Proc. Zool. Soc.* 1901, p. 157; *Heller*, *Smithson. Misc. Collect.* vol. lxi, no. 1, p. 19, 1913.

Coelodonta, *Bronn*, *Neues Jahrb. Min.* 1831, p. 51.

Opsiceros, *Gloger*, *Handbuch Naturgesch.* p. 125, 1841.

Atelodus, *Pomel*, *Ann. Sci. Lit. Auvergne*, vol. xxvi, p. 114, 1853, *Cat. Méth. Vert. Foss. Loire*, p. 78, 1854; *Flower*, *Proc. Zool. Soc.* 1876, 455; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 423, 1884; *Osborn*, *Bull. Amer. Mus. Nat. Hist.*

vol. xiii, p. 264, 1900 ; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 297, 1900.

Rhinaster, *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 282, 1862; *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 316, 1869.

Keitloa, *Gray, Proc. Zool. Soc.* 1867, p. 1025.

Ceratotherium, *Gray, Proc. Zool. Soc.* 1867, p. 1027, *Cat. Carnivora, etc. Brit. Mus.* p. 319, 1869; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 297, 1900; *Heller, Smithson. Misc. Collect.* vol. lxi, no. 1, p. 19, 1913.

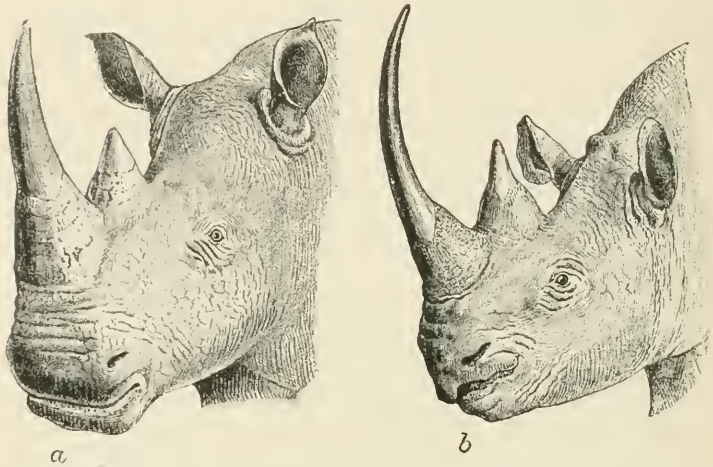

Fig. 18.—Heads of (*a*) White Rhinoceros (*Rhinoceros* [*Diceros*] *simus*), and (*b*) Black Rhinoceros (*R.* [*D.*] *bicornis*).

Skin more or less completely devoid of heavy folds; front teeth rudimentary or wanting; skull more or less elongated, with the occipital plane inclined backwards, and the auditory meatus open inferiorly. African.

IV. RHINOCEROS (DICEROS) BICORNIS
(Figs. 18 *b*, 19).

Rhinoceros bicornis, *Linn. Syst. Nat.* ed. 10, vol. i, p. 56, 1758, ed. 12, vol. i, p. 104, 1766; *Sparrman, K. Svenska Vet.-Ak. Handl.* 1778, pl. ix; *Gmelin, Linn.'s Syst. Nat.* vol. i, p. 57, 1788; *A. Smith, Illustr. S. African Zool.* vol. i, pl. ii, 1838; *Sclater, Proc. Zool. Soc.* 1868, p. 529, pl. xli, 1886, p. 144, pl. xvi, *Trans. Zool. Soc.* vol. ix, p. 655, pl. xcix, 1876; *Selous, Proc. Zool. Soc.* 1881, p. 725, *A Hunter's Wanderings in S. Africa*, ed. 18, 1890; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 423, 1884; *Bocage, J. Sci. Lisboa*, vol. v, p. 23, 1890; *Flower and Lydekker, Study of Mammals*, p. 408, 1891; *W. L. Sclater, Cat. Mamm.*

Ind. Mus. pt. ii, p. 205, 1891, *Fauna S. Africa, Mamm.* p. 303, 1900; *Flower, The Horse*, p. 59, 1901; *Nicholls and Eglington, Sportsman in S. Africa*, p. 62, 1892; *Lydekker, Horns and Hoofs*, p. 386, 1893, *Game Animals of Africa*, p. 25, 1908, *Proc. Zool. Soc.* 1911, p. 958; *Jackson, Big Game Shooting* (*Badminton Libr.*), vol. i, p. 25, 1894; *Matschie, Säugeth. Deutsch-Ost.-Afrika*, p. 97, 1895; *Bryden, Nature and Sport in S. Africa*,

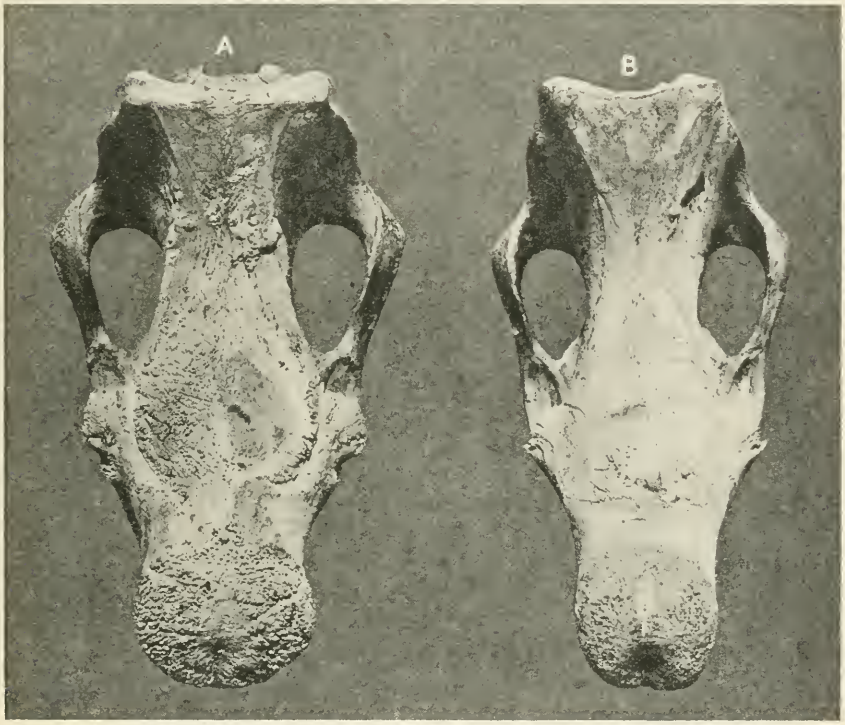

Fig. 19.—Upper Aspect of Skull of A, *Rhinoceros bicornis*, from East Africa (7. 2. 26. 1); and B, *R. bicornis somaliensis*, from Bulhar, Somaliland (11. 8. 2. 20).

From Lydekker, *Proc. Zool. Soc.* 1911, p. 958.

p. 187, 1897; *Kirby, Great and Small Game of Africa*, p. 85. 1899; *Beddard, Cambridge Nat. Hist. Mamm.* p. 257, 1902; *Drake-Brockman, Mamm. Somali.* p. 106, 1910.

Rhinoceros bicornis capensis, *Camper, Acta Ac. Petrop.* 1777, pt. 2, p. 193, pls. iii–v.

Rhinoceros africanus, *Desmarest, Mammalogie*, vol. ii, p. 400, 1822; *Griffith, Animal Kingdom*, vol. iii, p. 337, vol. v, p. 2911, 1827; *Jardine, Naturalist's Libr., Mamm.* vol. v, p, 182, pl. xii, 1837; *Harris, Wild Anim. S. Africa*, pl. xi, 1840; *Peters, Reise*

Mossambique, Säugeth. p. 180, 1852; *Heuglin, Faun. Rothen Meeres, Peterm. Mittheil.* 1861, p. 15; *Duvernoy, Arch. Mus. Paris*, vol. vii, pl. viii, 1854; *Gaudry, Enchainements, Mamm. Test.* p. 53, 1878.

Diceros bicornis, *Gray, Med. Repository*, vol. xv, p. 306, 1821; *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 137; *Rothschild, Powell-Cotton's Abyssinia*, p. 482, 1902; *Roosevelt, African Game Trails*, p. 486, 1910; *Cabrera, Cat. Met. Mam. Mus. Madrid*, p. 134, 1912; *Heller, Smithson. Misc. Collect.* vol. lxi, no. 1, p. 19, 1913; *Allen, Bull. Mus. Harvard*, vol. lviii, p. 324, 1914.

Rhinoceros keitloa (*or* ketloa), *A. Smith, Cat. Mamm. S. African Mus.* p. 7, 1837; *Illustr. Zool. S. Africa*, pl. i, 1838; *Schinz. Synop. Mamm.* p. 337, 1845; *Blanford, Geol. and Zool. Abyssinia*, p. 243, 1870.

Opsiceros bicornis, *Gloger, Handbuch Naturgesch.* p. 121, 1841.

Rhinoceros niger, *Schinz, Synop. Mamm.* vol. ii, p. 335, 1845.

Rhinoceros camperi, *Schinz, Synop. Mamm.* vol. ii, p. 335, 1845, *Monogr. Säugeth.* pl. i, 1848.

Atelodus bicornis, *Pomel, Ann. Sci. Lit. Auvergne*, vol. xxvi, p. 114, 1853; *Flower, Proc. Zool. Soc.* 1876, p. 455; *Osborn, Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 264, 1900.

Rhinaster bicornis, *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 282, 1862; *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 316, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 51, 1873.

Rhinaster keitloa (with vars. k. keitloa *and* k. camperi), *Gray, Proc. Zool. Soc.* 1867, p. 1025, *Cat. Carnivora, etc. Brit. Mus.* p. 317, 1867, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 51, 1873.

Keitloa bicornis, *Gray, Proc. Zool. Soc.* 1867, p. 1025.

Atelodus keitloa, *Flower, Proc. Zool. Soc.* 1876, p. 455.

Rhinoceros (Diceros) bicornis, *Ward, Records of Big Game*, ed. 6, p. 467, 1910, ed. 7, p. 466, 1914.

Biceros bicornis, *Virchow, Sitzber. k. Ak. Wiss. Berl.* 1910, p. 848.

Black Rhinoceros; Zwaart Rhinaster; Keitloa.

Typical locality Cape Colony.

Type of *Diceros, Opsiceros, Atelodus,* and *Rhinaster.*

A.—Rhinoceros bicornis bicornis.

Typical locality Cape Colony.

B.—Rhinoceros bicornis holmwoodi.

Rhinoceros holmwoodi, *Sclater, Proc. Zool. Soc.* 1893, p. 517; *Bryden, Great and Small Game of Africa*, p. 67, 1899.

Rhinoceros bicornis holmwoodi, *Lydekker, Game Animals of Africa*, p. 27, 1908; *Ward, Records of Big Game*, ed. 6, p. 467, 1910, ed. 7, p. 466, 1914.

Typical locality some part of East Africa inland of Zanzibar.

Type in collection.

C.—Rhinoceros bicornis somaliensis (Fig. 19 B).

Rhinoceros bicornis somaliensis, *Potocki, Sport in Somaliland*, p. 82. 1900; *Lydekker, Game Animals of Africa*, p. 27, 1908, *Proc. Zool. Soc.* 1911, p. 960.

Diceros bicornis somaliensis, *Allen, Bull. Amer. Mus. Nat. Hist.* vol. xxxiii, p. 340, 1914.

Typical locality Somaliland.

Type, the figure in Count Potocki's work.

D.—Rhinoceros bicornis cucullatus.

Rhinoceros cucullatus, *Wagner, Schreber's Säugthiere*, vol. vi, p. 317, pl. cccxvii, *F*, 1835; *Heuglin, Fauna Rothen Meeres, Peterm. Mittheil.* 1861, p. 15; *Fitzinger, Sitzber. k. Ak. Wiss. Wien*, 1867, p. 584.

Typical locality Abyssinia.

V. RHINOCEROS (DICEROS) SIMUS (Figs. 18 *a*, 20).

Rhinocerus simus, *Burchell, Bull. Soc. Philom.* 1817, p. 96, *Travels in S. Africa*, vol. ii, p. 75, 1824; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 186, pl. xiii, 1837; *A. Smith, Illustr. Zool. S. Africa*, vol. i, pl. xix, 1838; *Duvernoy, Arch. Mus. Paris*, vol. vii, pls. ii, iii, viii, 1854; *Sclater, Proc. Zool. Soc.* 1864, p. 100, 1886, p. 143, pl. xvi, fig. 1, 1903, vol. ii, p. 194; *Peters, Säugeth. Mossambique*, p. 180, 1852; *Heuglin, Fauna Rothen Meeres, Peterm. Mittheil.* 1861, p. 15; *Fitzinger, Sitzber. k. Ak. Wiss. Wien*, 1867, p. 583; *Hartmann, Zeitschr. Ges. Erdkunde*, vol. iii, p. 365, 1868; *Selous, Proc. Zool. Soc.* 1881, p. 725, pl. lx, *A Hunter's Wanderings in S. Africa*, p. 190, 1890, *Great and Small Game of Africa*, p. 52, 1899; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 424, 1884; *Jentink, Notes Leyden Mus.* vol. xii, p. 241, 1890, *C.-R. Congrès Zool. Moscou*, vol. ii, p. 92, 1893; *Flower, The Horse*, p. 60, 1891; *Flower and Lydekker, Study of Mammals*, p. 409, 1891; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. 2, p. 206, 1891, *Fauna S. Africa, Mamm.* vol. i, p. 299, 1900; *Nicolls and Eglington, Sportsman in S. Africa*, p. 64, 1892; *Millais, Proc. Zool. Soc.* 1893, p. 614; *Coryndon, ibid.* 1894, p. 329, pl. xviii; *Lydekker, Horns and Hoofs*, p. 388, 1894, *Game Animals of Africa*, p. 35, 1908; *Bryden, Nature and Sport in S. Africa*, p. 182, 1897; *Beddard, Cambridge Nat. Hist., Mamm.* p. 257, 1902; *Gibbons, Africa from South to North*, vol. ii, p. 221, 1904; *Schouteden, Rev. Zool. Africaine*, vol. i, p. 118, 1911.

Rhinoceros burchellii, *Desmarest, Mammalogie*, vol. ii, p. 401. 1822.

Rhinoceros camus, *Griffith, Animal Kingdom*, vol. v, p. 746, 1827.

Opsiceros simus, *Gloger, Handbuch Naturgesch.* p. 125, 1841.

Rhinoceros oswellii, *Gray, Proc. Zool. Soc.* 1853, p. 46, *Ann. Mag. Nat. Hist.* ser. 2, vol. xv, p. 142, 1855; *Andersson, Lake Ngami*, p. 386, 1856.

Atelodus simus, *Pomel, Act. Soc. Lit. Auvergne*, vol. xxvi, p. 114, 1853; *Flower, Proc. Zool. Soc.* 1876, p. 455; *Osborn. Bull. Amer. Mus. Nat. Hist.* vol. xiii, p. 264, 1900.

Rhinaster simus, *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 282, 1862.

Rhinaster oswellii, *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 283, 1862.

Ceratotherium simum, *Gray, Proc. Zool. Soc.* 1867, p. 1027, *Cat. Carnivora, etc. Brit. Mus.* p. 319, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 52, 1873; *Heller, Smithson. Misc. Collect.* vol. lxi, no. 1, p. 19, 1913.

Ceratotherium oswellii, *Gray, Proc. Zool. Soc.* 1867, p. 1029, *Cat. Carnivora, etc. Brit. Mus.* p. 322, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 52, 1873.

Atelodus oswelli, *Flower, Proc. Zool. Soc.* 1876, p. 556.

Diceros simus, *Thomas, Nature*, vol. lxii, p. 509, 1900, *Proc. Zool. Soc.* 1901, vol. ii, p. 158.

Coelodonta (?) simus, *Thomas, Proc. Zool. Soc.* 1901, vol. ii, p. 158.

Rhinoceros (Diceros) simus, *Ward, Records of Big Game*, ed. 6, p. 473, 1910, ed. 7, p. 472, 1914.

White Rhinoceros; Burchell's Rhinoceros; Square-mouthed Rhinoceros; White Rhinaster.

Typical locality Cape Colony.

The type of *Ceratotherium*.

A.—Rhinoceros simus simus.

Typical locality Cape Colony: the range extends as far north as the Zambesi; with the exception of a few individuals which still survive, under Government protection in Zululand, this race is extinct.

General characters those of the species.

B.—Rhinoceros simus cottoni (Fig. 20).

Rhinoceros simus cottoni, *Lydekker, Field*, vol. cxi, p. 317, 1908, *Game Animals of Africa*, p. 38, 1908; *Trouessart, C.-R. Ac. Sci. Paris*, vol. cxlvii, p. 1352, 1908, *Proc. Zool. Soc.* 1909, p. 198, pl. xxix; *Bercer, Sitzber. Ges. nat. Freunde*, 1910, p. 344, *In Afrikas Wildkammern*, p. 430, 1910; *Ward, Records of Big Game*, ed. 6, p. 473, 1910, ed. 7, p. 472, 1914.

FIG. 20.—MALE NILE WHITE RHINOCEROS (*Rhinoceros simus cottoni*).
Shot by Col. Theodore Roosevelt in the Lado Enclave, now in the U.S. National Museum, Washington.
From Heller, *Smithson. Misc. Coll.* vol. 61, No. 1, 1913.

Diceros simus cottoni, *Roosevelt, African Game Trails*, p. 486, 1910.
Ceratotherium simum cottoni, *Heller, Smithson. Misc. Collect.* vol. lxi, no. 1, p. 19, 1913.

Typical locality Lado.
Type in collection.

SUBORDER III.—HYRACOIDEA.

FAMILY PROCAVIIDÆ.

Genus PROCAVIA.

Procavia, *Storr, Prodromus Meth. Mamm.* p. 40, pl. B, 1780; *Lataste, Ann. Mus. Genova*, ser. 2, vol. iv. p. 5, 1886; *Thomas, Proc. Zool. Soc.* 1892, p. 51.

Hyrax, *Hermann, Tab. Affin. Anim.* p. 115, 1783; *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 283, 1869; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 438, 1884; *Flower and Lydekker, Study of Mammals*, p. 416, 1891; *Beddard, Proc. Biol. Soc.* 1909, p. 162; *Christy, ibid.* 1911, p. 672 (habits); *Lubosch, Arch. mikr. Anat.* vol. lxxviii, p. 353, 1911.

1. SUBGENUS PROCAVIA.

Hyrax, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 40, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 283, 1869; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 438, 1884.

Euhyrax, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 46, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 289, 1869.

Heterohyrax, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 50, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 294, 1869.

1. PROCAVIA CAPENSIS.

Cavia capensis, *Pallas, Spicil. Zool.* fasc. ii, p. 32, 1767.

Procavia capensis, *Storr, Prodromus Meth. Mamm.* p. 40, 1780; *Lataste, Ann. Mus. Genova*, ser. 2, vol. i, p. 5, 1886; *Woodward, Proc. Zool. Soc.* 1892, p. 50; *Thomas, ibid.* p. 60; *W. L. Sclater, Fauna S. Africa, Mamm.* vol. i, p. 310, 1900; *Cabrera, Cat. Met. Mam. Mus. Madrid*, p. 135, 1912; *Brauer, Sitzber. Ges. nat. Freunde*, 1914, p. 35.

Hyrax capensis, *Hermann, Tab. Affin. Anim.* p. 115, 1783; *Schreber, Säugthiere*, vol. iv, pl. ccxl, 1784, p. 920, 1792; *Griffith, Animal Kingdom*, vol. iii, p. 338, vol. v, p. 292, 1827; *Owen, Proc. Zool. Soc.* 1832, p. 202; *Reid, ibid.* 1835, p. 13; *Gray, List Mamm. Brit. Mus.* p. 187, 1843, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 42,

1868, *Cat. Carnivora, etc. Brit. Mus.* p. 285, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 38, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 283, 1862; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 438, 1884; *Flower and Lydekker, Study of Mammals*, p. 488, 1891; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 208, 1891, p. 310, 1900; *Beddard, Cambridge Nat. Hist., Mamm.* p. 233, 1902.

(?) Hyrax semicircularis, *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 285, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 44, pl. xii. fig. 2, 1873.

Klip-Das (Dutch); Dassie (English).

The type species.

Typical locality Cape Colony.

According to Brauer, the races of *P. capensis* are distinguishable as follows:—

A. Under-parts yellowish brown, often somewhat ochery.

a. Back nearly uniform brown, with the light bands very short; length of m^1, 7·3 to 8 mm.; basicranial length 84·5 to 93 mm. ..... *P. c. capensis.*

b. Back bright yellowish brown, grizzled with whitish yellow, and with the light bands long; length of m^1, 6·8 to 7·5 mm.; basicranial length 80 to 83·3 mm. ..... *P. c. windhuki.*

B. Under-parts dirty white or grey.

Back hair-brown to broccoli-brown; length of m^1, 6·8 to 7·6 mm.; basicranial length 71·3 to 79·9 mm..... *P. c. reuningi.*

C. Under-parts dirty white or grey with a yellowish or ochery tinge.

Back yellowish brown, in parts, especially posteriorly, more ochery; length of m^1, 6·5 to 7·1 mm..... *P. c. marlothi.*

D. Under-parts ochery.

a. Back ochery grizzled with white; length of m^1, 6·5 to 6·8 mm.; basicranial length 75·4 mm..... *P. c. schultzei.*

b. Back yellowish brown, with an ochery tinge; flanks mainly silver-grey; length of m^1, 6·8 to 7·2 mm.; basicranial length, 77·2 to 78·7 mm. ..... *P. c. waterbergensis.*

A.—Procavia capensis capensis.

Typical locality Cape Colony.

Under-parts yellowish brown, frequently almost ochery; back almost uniformly brown, with the light bands of very limited extent; length of m^1, 7·3 to 8 mm.; basicranial length, 84·5 to 93 mm.

B.—Procavia capensis windhuki.

Procavia capensis windhuki, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 30.

Typical locality Windhuk district, S.W. Africa.

Type in Berlin Museum.

General colour lighter than in typical race, being light yellowish brown grizzled with whitish yellow, and the pale bands much longer; dorsal patch black; under-parts dusky yellowish brown, with a somewhat ochery tinge; length of m^1, 6·8 to 7·5 mm.; basicranial length, 80 to 83·3 mm.

C.—Procavia capensis reuningi.

Procavia capensis reuningi, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 31.

Typical locality Windhuk district, S.W. Africa.

Type in Berlin Museum.

General colour hair-brown or broccoli-brown, with a short darker streak on hind part of back, and a black dorsal patch; under-parts dirty white or dirty grey; length of m^1, 6·8 to 7·6 mm.; basicranial length, 71·3 to 79·9 mm.

D.—Procavia capensis marlothi.

Procavia capensis marlothi, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 33.

Typical locality Clanwilliam, Northern Cape Colony.

Type in Berlin Museum.

Differs from the preceding races by the under-parts being dirty white or grey, with a yellowish or ochery tinge; back yellowish brown, tending in places, especially behind, to ochery; length of m^1, 6·5 to 7·1 mm.

E.—Procavia capensis schultzei.

Procavia capensis schultzei, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 32.

Typical locality Chamis, Great Namaqualand.

Type in Berlin Museum.

Under-parts ochery; back ochery, grizzled with white; length of m^1, 6·5 to 6·8 mm.; basicranial length, 75·4 mm.

F.—Procavia capensis waterbergensis.

Procavia capensis waterbergensis, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 33.

Typical locality Waterberg district.

Type in Berlin Museum.

Under-parts as in preceding race, but back yellowish brown with an ochery tinge, and flanks mainly silver-grey; length of m^1, 6·8 to 7·2 mm.; basicranial length, 77·2 to 78·7 mm.

II. PROCAVIA NIGRICANS.

Hyrax nigricans, *Peters*, *Sitzber. Ges. nat. Freunde*, 1879, p. 10; *Thomas*, *Proc. Zool. Soc.* 1892, p. 60, footnote (as a possible local form of *P. capensis*).

Typical locality Chinchoxo, Lower Congo.

Type in Berlin Museum.

Founded on an immature specimen, insufficient for specific determination.

III. PROCAVIA JOHNSTONI.

Procavia johnstoni, *Thomas*, *Proc. Zool. Soc.* 1894, p. 142; *Matschie*, *Säugeth. Deutsch.-Ost-Afrika*, p. 94, 1895; *Thomas and Wroughton*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xiv, p. 320, 1907.

Typical locality Nyasaland.

Type in collection.

IV. PROCAVIA SCIOANA.

Hyrax abyssinicus, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 47, 1868, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 42, pl. *x*, fig. 1, 1873. *nec* H. habessinicus. *Hemprich and Ehrenberg.*

Hyrax scioanus, *Giglioli, Ann. Mus. Genova*, vol. vi, p. 21, 1888.

Procavia shoana, *Thomas, Proc. Zool. Soc.* 1892, p. 61.

Typical locality Shoa; the range includes southern Abyssinia.

Type in the Genoa Museum.

V. PROCAVIA ERLANGERI.

Procavia erlangeri, *Neumann, Sitzber. Ges. nat. Freunde*, 1901, p. 238.

Typical locality Webi Shebeli Valley, Somaliland.

Type in the Berlin Museum.

VI. PROCAVIA ALPINI.

Hyrax alpini, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 45, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 287, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 43, 1873.

Procavia alpini, *Neumann, Sitzber. Ges. nat. Freunde*, 1901, p. 241.

Typical locality "Abyssinia."

Type in Collection.

Although identified by Thomas with *P. habessinica*, this hyrax is regarded by Neumann as a valid species, occurring in the Province of Gindeberat, Abyssinia.

VII. PROCAVIA KERSTINGI.

Procavia kerstingi, *Matschie, Sitzber. Ges. nat. Freunde*, 1899, p. 59; *Thomas, Ann. Mag. Nat. Hist.* ser. 7, vol. xv, p. 82, 1905.

Typical locality eastern Togoland, West Africa.

Type in Berlin Museum.

VIII. PROCAVIA GOSLINGI.

Procavia goslingi, *Thomas, Ann. Mag. Nat. Hist.* ser. 7, vol. xv, p. 82, 1905.

Typical locality Yerghum country, Northern Nigeria.

Type in collection.

A hypsodont, rather short-haired species with an elongated orange gland-patch, probably related to *P. kerstingi*, but with the backs of the ears yellowish grey, indistinctly edged with black on front border (instead of wholly black), and the hairs of the gland-patch orange throughout (instead of dark in the lower half). General colour dull yellowish sandy, sparsely speckled with black towards rump; under-parts dark buffish, not sharply defined from dark area above; head greyish brown, without yellow suffusion. Total length, 450 mm.; basicranial length, 72 mm.

IX. PROCAVIA SYRIACA (Fig. 21).

Hyrax syriacus, *Schreber, Säugthiere*, vol. iv, pl. ccxl, *B*, 1784, p. 923, 1792; *Griffith, Animal Kingdom*, vol. v, p. 293, 1827; *Hemprich and Ehrenberg, Symbol. Phys.* decas i, pl. ii, lower figure, 1828; *Heuglin, Fauna Rothen Meeres, Peterm. Mittheil.* 1861, pp. 16 and 19; *Tristram, Fauna Palestine*, p. 1, pl. i, 1884; *Flower and Lydekker, Study of Mammals*, p. 418, 1891; *Camerano, Boll. Mus. Torino*, vol. xxvi, no. 64, 1911.

Hyrax sinaiticus, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 45, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 288, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 42, 1873.

Procavia syriaca, *Thomas, Proc. Zool. Soc.* 1892, p. 62; *Bonhote, ibid.* 1909, p. 798.

Typical locality Syria; the range includes Palestine, the Sinaitic Peninsula, and Arabia.

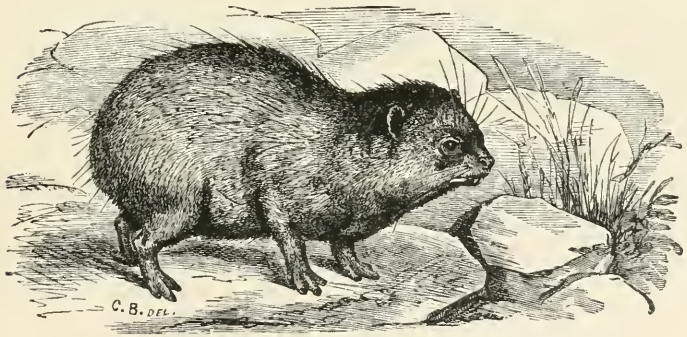

Fig. 21.—The Syrian Hyrax (*Procavia syriaca*).

General colour apparently dark and heavily washed with fulvous; cheek-teeth relatively large.

A.—Procavia syriaca syriaca.

Procavia syriaca typica, *Thomas*, *Proc. Zool. Soc.* 1892, p. 63.

Typical locality Syria; the range includes Palestine and the Sinaitic Peninsula.

Type in collection.

B.—Procavia syriaca jayakari.

Procavia syriaca jayakari, *Thomas*, *Proc. Zool. Soc.* 1892, p. 63, 1900, p. 104; *Matschie*, *Sitzber. Ges. nat. Freunde*, 1889, p. 64.

Typical locality Dofar, Southern Arabia.

Type in collection.

X. PROCAVIA RUFICEPS.

Hyrax ruficeps, *Hemprich and Ehrenberg*, *Symbol. Phys.* decas i, pl. ii, upper figure, 1828.

Hyrax burtoni, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 43, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 285, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 39, 1873, *partim.*

Hyrax dongolanus, *Blanford*, *Proc. Zool. Soc.* 1869, p. 642; *Bocage*, *J. Sci. Lisboa*, ser. 2, vol. iii, p. 192, 1889.

Procavia ruficeps, *Bonhote*, *Proc. Zool. Soc.* 1909, p. 727; nec *Thomas*, *ibid.* 1902.

Typical locality Dongola, Eastern Sudan.

Type in Berlin Museum.

Crown of head markedly darker than rest of upper-parts, and dorsal gland forming a conspicuous yellow patch; cheek-teeth relatively small.

XI. PROCAVIA BURTONI.

Hyrax burtoni, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 43, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 285, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 39, 1873, *partim.*

Procavia ruficeps, *Thomas*, *Proc. Zool. Soc.* 1892, p. 63; *Anderson and de Winton*, *Zool. Egypt*, *Mamm.* p. 324, 1902; *nec* Hyrax ruficeps, *Hemprich and Ehrenberg.*

Procavia burtoni, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1899, p. 64, *partim*; *Bonhote*, *Proc. Zool. Soc.* 1909, p. 707.

Typical locality Upper Egypt.

Type in collection.

Crown of head and hairs bordering dorsal gland similar in colour to rest of upper-parts, so that the gland does not form a conspicuous yellow spot; general colour apparently lighter and less washed with fulvous than in *P. syriaca*; cheek-teeth relatively large, the length of the upper series being 35 or 36 mm.

XII. PROCAVIA SHARICA.

Procavia sharica, *Thomas and Wroughton*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xix, p. 322, 1907.

Typical locality Shari Valley, Lake Chad district.

Type in collection.

Size as in *P. goslingi*, but coat shorter and harsher, general colour duller (hair-brown), and skull with a sudden narrowing of fore part of nasals; gland linear and orange. Total length, 450 mm.; basicranial length, 73 mm.

XIII. PROCAVIA HABESSINICA.

Hyrax habessinicus, *Hemprich and Ehrenberg*, *Symbol. Phys.* decas i, pl. ii,* 1828; *Heuglin*, *Fauna Rothen Meeres*, *Peterm. Mittheil.* 1861, p. 16; *Flower and Lydekker*, *Study of Mammals*, p. 418, 1891.

Hyrax ferrugineus, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. iii, p. 242, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 283, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 42, 1873, *partim.*

Hyrax irroratus *var.* leucogaster, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. iv, p. 242, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 288, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 42, pl. xii, fig. 3, 1873.

Hyrax brucei, *Blanford*, *Proc. Zool. Soc.* 1869, p. 642, *Zool. Abyssinia*, p. 252, 1872; *Bocage*, *J. Sci. Lisboa*, ser. 2, vol. iii, p. 193, 1889; nec *Gray*.

Hyrax abyssinicus, *Blanford*, *Proc. Zool. Soc.* 1869, p. 642; *Bocage*, *J. Sci. Lisboa*, ser. 2, vol. iii, p. 122, 1889; nec *Gray*.

Procavia abyssinica, *Thomas*, *Proc. Zool. Soc.* 1892, p. 64; *Moreau*, *Bull. Soc. Zool. France*, vol. xxvii, p. 202, 1902.

Typical locality Abyssinia.

Type in Berlin Museum.

* The dark figure; *P. ruficeps* is the upper, and *P. syriaca*, the lower figure.

A.—Procavia habessinica habessinica.

Procavia abyssinica typica, *Thomas*, *Proc. Zool. Soc.* 1892, p. 66.

Locality Abyssinia, from Bogosland and Massowa southwards through the highlands to Adigrat.

Type in Berlin Museum.

General characters and colour those of the species; size relatively large and fur long.

B.—Procavia habessinica minor.

Procavia abessinica minor, *Thomas*, *Proc. Zool. Soc.* 1892, p. 66.

Typical locality Alali, between Beilul and Assab, on western shore of Red Sea, about 15° N. lat.

Type in collection.

Smaller and shorter-haired than typical race; diastema very short.

XIV. PROCAVIA FERRUGINEA.

Hyrax ferrugineus, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. iii, p. 242, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 283, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 42, 1873, *partim.*

Procavia ferruginea, *Neumann*, *Proc. Zool. Soc.* 1902, vol. ii, p. 143.

Typical locality Abyssinia.

Type in collection.

XV. PROCAVIA PALLIDA.

Procavia pallida, *Thomas*, *Proc. Zool. Soc.* 1892, p. 67, pl. iii.

Typical locality northern Somaliland.

Type in collection.

XVI. PROCAVIA RUWENZORII.

Procavia ruwenzorii, *Neumann*, *Proc. Zool. Soc.* 1902, vol. ii, p. 143.

Typical locality Mt. Ruwenzori, British East Africa.

Type in collection.

XVII. PROCAVIA MACKINDERI.

Procavia mackinderi, *Thomas*, *Proc. Zool. Soc.* 1900, p. 176.

Typical locality Mount Kenya, British East Africa.
Type in collection.

A.—Procavia mackinderi mackinderi.

Typical locality as above.

B.—Procavia mackinderi zelotes.

Procavia mackinderi zelotes, *Osgood*, *Field Mus. Zool. Pub.* vol. x, p. 5, 1910.

Typical locality between Naivasha and Kijaba, British East Africa.
Type in Field Museum, Chicago.

XVIII. PROCAVIA LOPESI.

Procavia lopesi, *Thomas and Wroughton*, *Ann. Mag. Nat. Hist.* ser. 7, vol. xix, p. 522, 1907.

Typical locality Gaima Range, Central Africa; the distribution also includes the Kibali Valley, Monbuttu.
Type in collection.

A hypsodont species, differing from the two preceding ones by the shorter fur and black crown of the head, the general colour being raw umber, due to the admixture of black with buff hairs; gland-patch bright orange; skull with the long, narrow nasals of *P. jacksoni*, but larger, with stouter cheek-teeth; in size the skull closely resembles that of *P. mackinderi*, but is distinguished by its smaller size, narrow nasals and rather bigger teeth. Total length, 560 mm.; basicranial length, 90 mm.

XIX. PROCAVIA OWENI.

Procavia oweni, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. viii, p. 123, 1911.

Typical locality Fouta Jalon, French Guinea.
Type in collection.

A large hypsodont species, with a large buffish orange gland-patch, allied to *P. lopesi* (and thus different from other west-coast hyraxes), but with the general colour tending more to buff, especially on the feet, which are greyish brown in the eastern species. Total length, 510 mm.

XX. PROCAVIA JACKSONI.

Procavia jacksoni, *Thomas*, *Proc. Zool. Soc.* 1900, p. 176, note.

Typical locality Ravine Station, British East Africa.
Type in collection.

XXI. PROCAVIA DÆMON.

Procavia dæmon, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 199, 1910.

Tppical locality Mount Elgon, British East Africa.
Type in collection.

Differs from *P. jacksoni* by its softer fur, the darker and richer "raw umber" general colour, which has a distinct buffish tinge, owing to the deep buffish subterminal rings of the hairs, and the stouter cheek-teeth; skull wider and stouter, with the nasals broader at base. Length of head and body, 445 mm.; basicranial length, 84 mm.

XXII. PROCAVIA MATSCHIEI.

Procavia matschiei, *Neumann*, *Zool. Jahrb.*, *Syst.* vol. xiii, p. 555, 1800, *Sitzber. Ges. nat. Freunde*, 1901, p. 242.

Typical locality Muansa, German East Africa.
Type in Berlin Museum.

XXIII. PROCAVIA WELWITSCHI.

Hyrax arboreus, *Peters*, *Proc. Zool. Soc.* p. 401, nec *A. Smith*.
Hyrax welwitschii, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 43, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 286, 1869; *Bocage, J. Sci. Lisboa*, ser. 2, vol. iii, p. 186, pl. i, fig. 1, 1889, vol. iv, p. 22, 1890.
Procavia welwitschii, *Thomas*, *Proc. Zool. Soc.* 1892, p. 68; *Neumann*, *Sitzber. Ges. nat. Freunde*, 1901, p. 240; *Brauer*, *ibid.* 1914, p. 35.

Typical locality coast of Angola.
Type in Lisbon Museum.

XXIV. PROCAVIA VOLKMANNI.

Procavia volkmanni, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 35.

Typical locality Franzfontein, German S.W. Africa.

Type in Berlin Museum.

Allied to *P. welwitschi*, but with p_1 more developed, the dentition hypsodont, and the general colour dusky cinnamon.

XXV. PROCAVIA LATASTEI.

Procavia latastei, *Thomas*, *Proc. Zool. Soc.* 1892, p. 69; *Neumann*, *Sitzber. Ges. nat. Freunde*, 1901, p. 240.

Typical locality Senegal.

Co-types in Genoa and British Museums.

XXVI. PROCAVIA BRUCEI.

Hyrax brucei, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 44, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 287, 1869, nec *Hand-List*, 1873; *W. L. Sclater*, *Cat. Mamm. Ind. Mus.* pt. ii, p. 209, 1901.

Dendrohyrax blainvillii, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 50, 1868. *Cat. Carnivora, etc. Brit. Mus.* p. 293, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 44, 1873.

Heterohyrax blainvillei, *Gray*, 1868, *loc. cit.* 1869, *op. cit.* p. 294.

Hyrax irroratus, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. iii, p. 242, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 288, 1869, *nec var.* leucogaster, *Hand-List*, 1873.

Hyrax mossambicus, *Peters*, *Sitzber. Ges. nat. Freunde*, 1869, p. 25, *Noack*, *Zool. Jahrb., Syst.* vol. iii, p. 199, 1888.

Dendrohyrax bakeri, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. xiv, p. 132, 1874.

Procavia brucei, *Thomas*, *Proc. Zool. Soc*, 1892, p. 70; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 315, 1900.

Typical locality Abyssinia, whence the range extends southwards through Somaliland, Uganda, Ugogo, etc., to Mozambique.

Type, as represented by *D. blainvillei*, of *Heterohyrax*.

A.—Procavia brucei brucei.

Procavia brucei typica, *Thomas*, *Proc. Zool. Soc.* 1892, p. 71.

Typical locality Abyssinia.

Type in collection.

B.—Procavia brucei somalica.

Procavia brucei somalica, *Thomas, Proc. Zool. Soc.* 1892, p. 71, *Ann Mag. Nat. Hist.* ser. 8, vol. v, p. 201, 1910; *Drake-Brockman, Mamm. Somali*, p. 109, 1910.

Typical locality Berbera, Somalilaud.

Type in collection.

Rather smaller than typical race, and colour paler. Basicranial length, 74 mm.

C.—Procavia brucei hindei.

Procavia brucei hindei, *Wroughton, Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 107, 1910; *Lönnberg, ibid.* vol. ix, p. 66, 1912.

Typical locality, Kikuyu, B. E. Africa.

Type in collection.

Darker and redder than typical race, the general colour being "Mars-brown" ticked with whitish; black tips of dorsal hairs short; skull rather wider, with a lateral pair of backwardly directed processes on hind border of palate, which are wanting in true *brucei*, from which this race is readily distinguished by the blackish face. Total length, 450 mm.; length of upper series of cheek-teeth, 29 mm.; basicranial length, 73 mm.

D.—Procavia brucei borana.

Procavia brucei borana, *Lönnberg, Ann. Mag. Nat. Hist.* ser. 8, vol. ix, p. 66, 1912.

Typical locality north of Guaso Nyiro, B. E. Africa.

Type in Royal Swedish Museum.

Closely related to *P. b. hindei* but considerably smaller, general colour burnt-umber brown, grizzled with whitish, and dark brown tips to the hairs; face blackish brown; eyebrow-streak dull whitish; gland-patch cinnamon; flanks brownish grey; under-parts dull creamy white, with some buffish between fore-legs and in anal region.

E.—Procavia brucei ruddi.

Procavia brucei ruddi, *Wroughton*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 108, 1910.

Typical locality Gorongoza Mountains, Portuguese East Africa.

Type in collection.

Differs from *P. b. hindei* by its slightly superior size, looser coat, and the coarsely mixed brown and whitish general colour, with a distinct blackish suffusion on middle of back, and the black tips about one-third total length of hairs; flanks paler than back, sharply defined from white underparts; skull rather wider and stouter, with palatal tubercles small or obsolete. Total length, 510 mm.; length of upper tooth row, 31 mm.

F.—Procavia brucei maculata.

Procavia brucei maculata, *Osgood*, *Field Mus. Zool. Pub.* vol. x, p. 6, 1910.

Typical locality Lukenya Mountain, B. E. Africa.

Type in Field Museum, Chicago.

G.—Procavia brucei granti.

Procavia brucei granti, *Wroughton*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 109, 1910.

Typical locality Woodbush, Transvaal.

Type in collection.

Larger than any of the three preceding races, with long fur, which is harsher than in *P. b. ruddi*, and blackish brown grizzled with buffish on the back, becoming lighter on the flanks, and passing into dirty white on the underparts; face and crown like back, with a slight suffusion of black; gland-patch tawny ochery; skull short and wide, without the palatal protuberances of *P. b. hindei*. Total length, 504 mm.; length of upper series of cheek-teeth, 33 mm.; basicranial length, 76 mm.

H.—Procavia brucei manningi.

Procavia brucei manningi, *Wroughton, Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 109, 1910.

Typical locality Mlanji, Nyasaland.

Type in collection.

Nearly related to *P. b. ruddi*, but darker and slightly larger, the entire length of the hairs becoming blackish in fully adult individuals, although in young animals the basal half and the tip are alone black, the remainder being buffish white below the tip, and then brown; forehead between eyes nearly black; gland-patch and eyebrow-streak tawny, the former paler. Total length, 580 mm.; length of upper series of cheek-teeth, 35 mm.; basicranial length, 80 mm.

I.—Procavia brucei thomasi.

Procavia thomasi, *Neumann, Sitzber. Ges. nat. Freunde*, 1901, p. 240.
Procavia brucei thomasi, *Thomas, Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 200, 1910.

Typical locality Kaffa, N.E. Africa.

Type in Berlin Museum.

J.—Procavia brucei kempi.

Procavia brucei kempi, *Thomas, Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 200, 1910.

Typical locality Mount Elgon, B. E. Africa, at a height of 7000 feet.

Type in collection.

A mountain race distinguished from all the others by its dark general colour, which is between "mummy-brown" and bistre, with the light subterminal rings to the hairs narrow and dull buffish; under-parts dirty white; skull very like that of the preceding race, with the sphenoidal rostrum forming a rather narrow, although not sharp, ridge. Total length (immature), 395 mm.; basicranial length, 71 mm.

K.—Procavia brucei princeps.

Procavia brucei princeps, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 199, 1910.

Typical locality Arusi-Gallaland.

Type in collection.

The largest member of the group, distinguishable by this feature combined with the sharp-edged ridge on the sphenoidal rostrum of the skull. Fur coarse, harsh, and of medium length (22 mm.); general colour mixed buffish and black, forming a coarse grizzle, with the light subterminal rings of the hairs creamy, and the under-parts distinctly whitish, without a buffish suffusion. Total length, 470 mm.; basicranial length, 90 mm.

XXVII. PROCAVIA PUMILA.

Procavia pumila, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 201, 1910.

Typical locality a point 50 miles south-east of Berbera, Somaliland.

Type in collection.

Essentially similar to *P. brucei somalica* (*supra*, p. 70), but so much smaller that, in the opinion of its describer, it is entitled to specific distinction. Total length, 375 mm.; basicranial length, 65 mm.

A.—Procavia pumila pumila.

Typical locality 50 miles south-east of Berbera.

Fur relatively long and colour light.

B.—Procavia pumila rudolfi.

Procavia pumila rudolfi, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 202, 1910.

Typical locality north end of Lake Rudolf.

Type in collection.

Fur shorter and colour darker than in typical race.

XXVIII. PROCAVIA SLATINI.

Procavia slatini, *Sassi*, *Sitzber. k. Ak. Wiss. Wien*, vol. cxv, p. 995. 1906.

Typical locality White Nile, south of Gondokoro.
Type in Vienna Museum.

XXIX. PROCAVIA MUENZERI.

Procavia (Heterohyrax) münzeri, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1913, p. 137.

Typical locality Bismarckburg, Tanganyika.
Type in Berlin Museum.

XXX. PROCAVIA FROMMI.

Procavia (Heterohyrax) frommi, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1913, p. 136.

Typical locality Maheng, German East Africa.
Type in Berlin Museum.

XXXI. PROCAVIA SCHUBOTZI.

Procavia (Heterohyrax) schubotzi, *Brauer. Sitzber. Ges. nat. Freunde*, 1913, p. 134.

Typical locality district northward of Lake Kivu.
Type in Berlin Museum.

XXXII. PROCAVIA BOUNHIOLI.

Procavia bounhioli, *Kollmann*, *Bull. Mus. Paris*, 1912, p. 281.

Typical locality Algerian Sahara.
Type in Paris Museum.

XXXIII. PROCAVIA BUTLERI.

Procavia butleri, *Wroughton*, *Ann. Mag. Nat. Hist.* ser. 8, vol. viii. p. 461, 1911; *Allen*, *Bull. Mus. Harvard*, vol. lviii, p. 326, 1914.

Typical locality Gebel Fazogli, Blue Nile Valley, at the foot of the Abyssinian highlands.
Type in collection.

XXXIV. PROCAVIA BAMENDÆ.

Procavia bamendæ, *Brauer, Sitzber. Ges. nat. Freunde*, 1913, p. 125.

Typical locality southern Cameruns.
Type in Berlin Museum.

XXXV. PROCAVIA KAMERUNENSIS.

Procavia kamerunensis, *Brauer, Sitzber. Ges. nat. Freunde*, 1913, p. 127.

Typical locality northern Cameruns.
Type in Berlin Museum.

2. Subgenus **DENDROHYRAX.**

Dendrohyrax, *Gray, Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 48, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 291, 1869; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 439, 1884.

XXXVI. PROCAVIA (DENDROHYRAX) SCHEELEI.

Dendrohyrax scheelei, *Matschie, Säugeth. Deutsch-Ost-Afrika*, p. 90, note, 1895.
Procavia scheelei, *Neumann, Sitzber. Ges. nat. Freunde*, 1901, p. 243.

Typical locality Khutu, Ruaha Valley, German East Africa.
Type in Berlin Museum.

XXXVII. PROCAVIA (DENDROHYRAX) VALIDA.

Dendrohyrax validus, *True, Proc. U.S. Nat. Mus.* vol. xii, p. 227, 1890, vol. xiv, p. 457, pl. lxv, 1892; *Matschie, Säugeth. Deutsch-Ost-Afrika*, p. 92, 1895.
Procavia valida, *Thomas, Proc. Zool. Soc.* 1892, p. 74; *Neumann, Sitzber. Ges. nat. Freunde*, 1901, p. 240; *Méhely, Állat. Közlem.* vol. vi, p. 1, 1907.

Typical locality Mount Kilimanjaro.
Type in U.S. National Museum, Washington.

XXXVIII. PROCAVIA (DENDROHYRAX) EMINI.

Dendrohyrax emini, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 5, vol. xx, p. 440, 1887, *Proc. Zool. Soc.* 1888, p. 15, pl. ii.

Procavia emini, *Thomas*, *Proc. Zool. Soc.* 1892, p. 73.

Typical locality Monbuttu, Upper Congo.

Type in collection.

A.—Procavia emini emini.

Typical locality Monbuttu.

Type in collection.

Hairs of back slaty blackish for basal four-fifths of length and broadly tipped with buffish.

B.—Procavia emini latrator.

Procavia emini latrator, *Thomas*, *Ann. Mag. Nat. Hist.* ser. 8, vol. v, p. 285, 1910.

Typical locality Batempa, Upper Sankuru Valley, south-central Congo.

Type in collection.

Hairs of back white or whitish in basal half, with a subterminal blackish ring; white eyebrow-streaks more conspicuous than in typical race; a light patch on occiput; dorsal gland large and ill-defined, with some hairs wholly cream-coloured and others cream at tip, blackish in middle of length and whitish at base. Total length, 540 mm.; basicranial length, 92 mm.

XXXIX. PROCAVIA (DENDROHYRAX) ARBOREA.

Hyrax arboreus, *A. Smith*, *Trans. Linn. Soc.* vol. xv, p. 468, 1827; *Peters*, *Reise Mossam. Säugeth.* p. 182, 1852; *Kirk*, *Proc. Zool. Soc.* 1864, p. 656.

Dendrohyrax arboreus, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 49, 1868, vol. xi, p. 154, 1873, *Cat. Carnivora, etc. Brit. Mus.* p. 293, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 44, pl. xiii, fig. 2, 1873; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 439, 1884; *Flower and Lydekker*, *Study of Mammals*, p. 418, 1891.

Hyrax bocagei, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. iii, p. 249, 1869, *Cat. Carnivora, etc. Brit. Mus.* p. 289, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 43, pl. xi, fig. 2, 1873; *Bocage*, *J. Sci. Lisboa*, ser. 2, vol. iii, p. 188, pl. i, fig. 2, 1889, vol. iv, p. 22, 1890.

Dendrohyrax grayi, *Bocage*, *J. Sci. Lisboa*, ser. 2, vol. iii, p. 190, 1890, vol. iv, p. 22, 1890.

Procavia grayi, *Thomas*, *Proc. Zool. Soc.* 1892, p. 72 (as a doubtful species).

Procavia arborea, *Thomas*, *Proc. Zool. Soc.* 1892, p. 74; *W. L. Sclater*, *Fauna S. Africa*, *Mamm.* vol. i, p. 314, 1900; *Neumann*, *Sitzber. Ges. nat. Freunde*, 1901, p. 243.

Type of *Dendrohyrax*.

Typical locality Cape Colony; the range includes Zambesia and Natal.

Type in collection.

XL. PROCAVIA (DENDROHYRAX) STUHLMANNI.

Dendrohyrax stuhlmanni, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1892, p. 110, *Säugeth. Deutsch-Ost-Afrika*, p. 91, 1895.

Typical locality Bukoba, Victoria Nyanza.

Type in Berlin Museum.

XLI. PROCAVIA (DENDROHYRAX) NEUMANNI.

Dendrohyrax neumanni, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1893, p. 112, *Säugeth. Deutsch-Ost-Afrika*, p. 91, 1895.

Typical locality Zanzibar.

Type in Berlin Museum.

XLII. PROCAVIA (DENDROHYRAX) DORSALIS.

Hyrax dorsalis, *Fraser*, *Proc. Zool. Soc.* 1852, p. 99, pl. xxxiii; *Jentink*, *Cat. Osteol. Mus. Pays-Bas*, pl. iv, 1887, *Notes Leyden Mus.* vol. x, p. 26, 1888.

Hyrax sylvestris, *Temminck*, *Esquiss. Zool. Guinée*, p. 182, 1853.

Dendrohyrax dorsalis, *Gray*, *Ann. Mag. Nat. Hist.* ser. 4, vol. i, p. 49, 1868, *Cat. Carnivora, etc. Brit. Mus.* p. 292, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 43, pl. xii, fig. 1 and pl. xiii, fig. 1, 1873; *Flower and Garson*, *Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 440, 1884; *Flower and Lydekker*, *Study of Mammals*, p. 418, 1891; *Matschie*, *Säugeth. Deutsch-Ost-Afrika*, p. 90, 1895; *Pousargues*, *Ann. Sci. Nat., Zool.* ser. 8, vol. iv, p. 92, 1896.

Hyrax stampflii, *Jentink*, *Notes Leyden Mus.* vol. viii, p. 209, 1886, vol. x, p. 26, pl. iv, 1888, *Cat. Ostéol. Mus. Pays-Bas*, pl. iv, 1887.

Procavia dorsalis, *Thomas*, *Proc. Zool. Soc.* 1892, p. 75.

Typical locality Fernando Po; the range extending on the west coast at least from Liberia to the Cameruns and Fernando Po.

XLIII. PROCAVIA (DENDROHYRAX) MARMOTA.

Procavia (Dendrohyrax) marmota, *Thomas*, *Proc. Zool. Soc.* 1901. p. 88.

Typical locality Entebbe, Uganda.
Type in collection.

XLIV. PROCAVIA (DENDROHYRAX) BETTONI.

Procavia bettoni, *Thomas and Schwann*, *Proc. Zool. Soc.* 1904, vol. i, p. 464.
Dendrohyrax bettoni, *Allen*, *Bull. Amer. Mus. Nat. Hist.* vol. xxxiii. p. 340, 1914.

Typical locality Kikuyu, B. E. Africa.
Type in collection.

XLV. PROCAVIA (DENDROHYRAX) ASCHANTIENSIS.

Procavia (Dendrohyrax) aschantiensis, *Brauer*, *Sitzber. Ges. nat. Freunde*, 1914, p. 36.

Typical locality Ashanti.
Type in Berlin Museum.

XLVI. PROCAVIA (DENDROHYRAX) TERRICOLA.

Dendrohyrax terricola, *Mollison*, *Anat. Anz.* vol. xxix, p. 423, 1908, *Morphol. Jahrb.* vol. xxxiv, p. 240, 1905.

Typical locality Usambara.

XLVII. PROCAVIA (DENDROHYRAX) ADAMETZI.

Procavia (Dendrohyrax) adametzi, *Brauer*, *Sitsber. Ges. nat. Freunde*, 1912, p. 412.

Typical locality Cameruns.
Type in Berlin Museum.

A.—Procavia adametzi adametzi.

Typical locality Cameruns.
Type in Berlin Museum.

B.—Procavia adametzi zenkeri.

Procavia (Dendrohyrax) adametzi zenkeri, *Brauer, Sitzber. Ges. nat. Freunde*, 1914, p. 38.

Typical locality Bipindi, Cameruns.
Type in Berlin Museum.

XLVIII. PROCAVIA (DENDROHYRAX) TESSMANNI.

Procavia (Dendrohyrax) tessmanni, *Brauer, Sitzber. Ges. nat. Freunde*, 1912, p. 411.

Typical locality Spanish Guinea.
Type in Berlin Museum.

XLIX. PROCAVIA (DENDROHYRAX) CRAWSHAYI.

Procavia crawshayi, *Thomas, Proc. Zool. Soc.* 1900, p. 178, 1901, p. 88.
Dendrohyrax crawshayi, *Dollman, Ann. Mag. Nat. Hist.* ser. 8, vol. xviii, p. 131, 1911.

Typical locality Uganda.
Type in collection.

A.—Procavia crawshayi crawshayi.

Typical locality Uganda.
Type in collection.

B.—Procavia crawshayi laikipia.

Dendrohyrax crawshayi laikipia, *Dollman, Ann. Mag. Nat. Hist.* ser. 8, vol. viii, p. 131, 1911.

Typical locality Laikipia, B. E. Africa.
Type in collection.

L. PROCAVIA (DENDROHYRAX) ADOLFI-FRIEDERICI.

Procavia (Dendrohyrax) adolfi-friederici, *Brauer, Sitzber. Ges. nat. Freunde*, 1913, p. 132.

Typical locality district north of Lake Kivu.
Type in Berlin Museum.

LI. PROCAVIA (DENDROHYRAX) SCHEFFLERI.

Procavia (Dendrohyrax) scheffleri, *Brauer, Sitzber. Ges. nat. Freunde*, 1913, p. 130.

Typical locality Kilwezi, B. E. Africa.
Type in Berlin Museum.

SUBORDER IV.—PROBOSCIDEA.

FAMILY ELEPHANTIDÆ.

Genus ELEPHAS.

Elephas, *Linn., Syst. Nat.* ed. 10, vol. i, p. 35, 1758, ed. 12, vol. i, p. 48, 1766; *Falconer, Quart. Journ. Geol. Soc.* vol. xiii, p. 318, 1857; *Gray, Cat. Carnivora, etc. Brit. Mus.* p. 358, 1869; *Lydekker, Cat. Foss. Mamm. Brit. Mus.* pt. iv, p. 78, 1886.

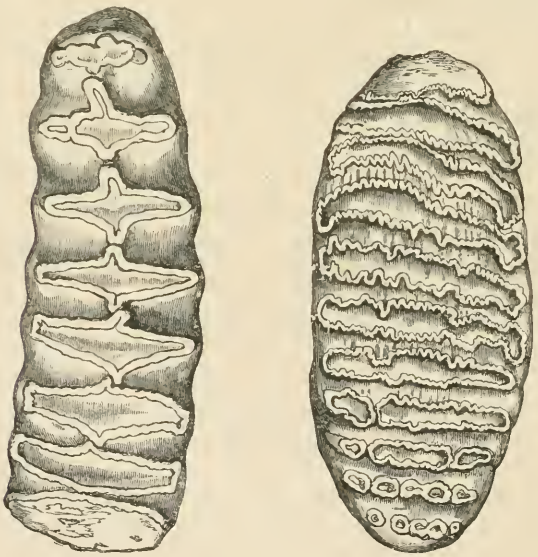

FIG. 22.—AN UPPER MOLAR (A) OF THE AFRICAN ELEPHANT (*E. africanus*), AND (B) OF THE ASIATIC ELEPHANT (*Elephas maximus*).

1. Subgenus **ELEPHAS.**

Euelephas, *Falconer*, *Quart. Journ. Geol. Soc.* vol. xiii, p. 318, 1857.

I. ELEPHAS MAXIMUS (Figs. 22 B, 23–25).

Elephas maximus, *Linn.*, *Syst. Nat.* ed. 10, vol. i, p. 35, 1758, ed. 12, vol. 1, p. 48, 1766, *partim*; *Blanford*, *Fauna Brit. India*, *Mamm.* p. 463, 1891; *Lydekker*, *Great and Small Game of India*, p. 1, 1900, *Game Animals of India*, p. 6, 1907; *Elliot*, *Cat. Mamm. Field Mus.* (*Field Mus. Zool. Pub.* vol. viii) p. 106, 1907; *Andrews*, *Guide to Elephants Brit. Mus.* p. 39, 1908; *Ward*, *Records of Big Game*, ed. 6, p. 476, 1910, ed. 7, p. 475, 1914.

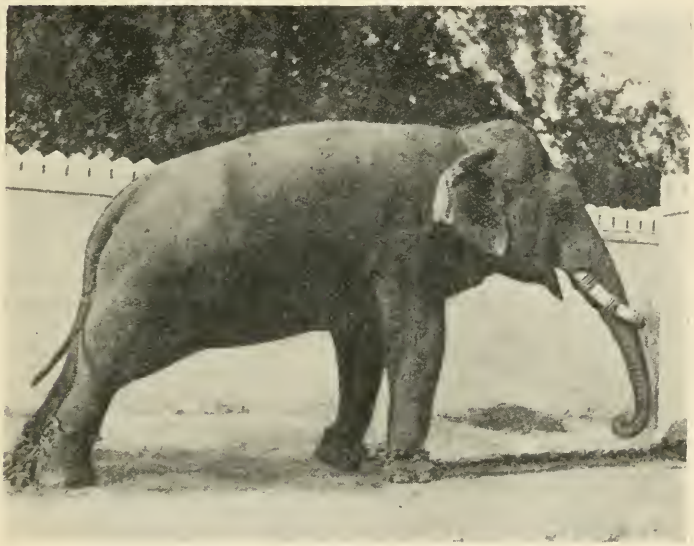

Fig. 23.—Large Male Indian Elephant (*Elephas maximus*), belonging to H.H. the Maharaja of Alwar.

From S. S. Flower, "Report on a Zoological Mission to India in 1913," Ministry of Public Works, Cairo, 1914.

Elephas indicus, *Cuvier*, *Tabl. Élem. Hist. Nat.* p. 148, 1798, *Règne Animal*, vol. i, p. 231, 1817; *Corse*, *Asiatic Researches*, vol. iii, p. 29, 1799; *Griffith*, *Animal Kingdom*, vol. iii, p. 326, vol. v, p. 286, 1827; *Jardine*, *Naturalist's Libr.*, *Mamm.* vol. v, p. 106, pl. ii, 1837; *Elliot*, *Madras Journ.* vol. x, p. 219, 1839; *Gray*, *List Mamm. Brit. Mus.* p. 184, 1843, *Cat. Carnivora*, *etc. Brit. Mus.* p. 358, 1869, *Hand-List Thick-skinned Mamm. Brit. Mus.* p. 72, 1873; *Kelaart*, *Prodromus Faunæ Zeylan.* p. 77, 1852;

Gerrard, Cat. Bones Mamm. Brit. Mus. p. 274, 1862; *Blyth, Cat. Mamm. Mus. Asiat. Soc. Bengal*, p. 134, 1863; *Falconer, Nat. Hist. Rev.* vol. iii, p. 81, 1863; *Jerdon, Mamm. India*, p. 229, 1867; *Johnston, Proc. Asiat. Soc. Bengal*, 1868, p. 127; *Sterndale, Mamm. India*, p. 389, 1884; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 442, 1884; *Lydekker, Cat. Foss. Mamm. Brit. Mus.* pt. iv. p. 98, 1886; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii, p. 206, 1891; *Flower and Lydekker, Study of Mammals*, p. 424, 1891; *Hose, Mamm. Borneo*, p. 62, 1893; *Beddard, Cambridge Nat. Hist., Mamm.* p. 221, 1902; *Lull, Smithson. Rep.* 1908, pp. 664 and 673, 1909.

Elephas asiaticus, *Blumenbach, Handbuch Naturgeschichte*, vol. ii, p. 403, 1803.

Indian Elephant: Hathi.

The name *Elephas maximus* is typified by a Ceylon elephant, and at first sight it would seem that Ceylon should be taken as the typical locality of the species. But there are two races of elephants in that island; one—probably indigenous—in which the tusks of the males are insignificant, and the other—almost certainly introduced—in which they are large. Now it seems almost certain that the big-tusked race formed the type of Linne's species: and if so, Ceylon will not be the typical locality. Unfortunately, it is uncertain whether the tusker-race was imported from the Indian mainland * or from Lower Burma.† Under these circumstances the writer has considered it advisable to take southern India (say Mysore) as the type locality, and to regard the small tusked Ceylon form as a second race.

The range includes India (to a considerable elevation in the Himalaya), Assam, Cachar, Ceylon, Burma, Siam, Cochin China, the Malay Peninsula, northern Borneo (where the species may have been introduced), and Sumatra.

A.—Elephas maximus maximus.

Elephas indicus bengalensis, *Blainville, Ostéographie, Genus Elephas*, pl. vii.

Typical locality arbitrarily taken as Mysore (*supra*).

* See *Lydekker, Game Animals of India*, p. 15.

† See Still, *Spolia Zeylanica*, vol. iv. p. 178, 1907.

B.—Elephas maximus zeylanicus.

Elephas indicus zeylanicus, *Blainville*, *Ostéographie*, *Genus Elephas*, pl. i.

Elephas maximus zeylanicus, *Lydekker*, *Game Animals of India*, *etc.* p. 15, 1907.

Typical locality Ceylon.

C.—Elephas maximus sumatranus (Fig. 24).

Elephas sumatranus, *Temminck*, *Coup d'œil Poss. Neerland.* vol. ii, p. 91, 1847, *Proc. Zool. Soc.* 1849, p. 144; *Schlegel*, *Versl. Med. Ac. Vet. Afdeel. Natuur.* 1861, p. 101, *Nat. Hist. Rev.* vol. ii, p. 72, 1862; *Jentink*, *Aadr. Weekblad*, 1881, pp. 281 and 293; *Cabrera*, *Cat. Met. Mamm. Mus. Madrid*, p. 135, 1912.

Elephas maximus sumatranus, *Lydekker*, *Great and Small Game of India*, *etc.* p. 111, 1900, *Game Animals of India*, *etc.* p. 16, 1907.

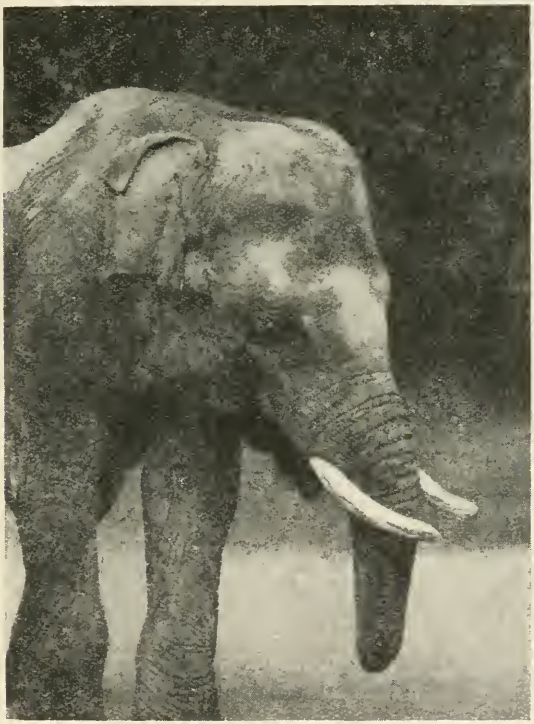

Fig. 24.—Male Elephant (*Elephas maximus sumatranus*), Deli, Sumatra, formerly living in the Rotterdam Zoological Gardens.
From a photograph sent by Dr. J. Büttikofer.

Typical locality Sumatra.

The illustration (fig. 24) of a Sumatran elephant in the Rotterdam Zoological Gardens is taken from a photograph sent by Dr. J. Büttikofer. Mr. Graham Renshaw,* who has figured a specimen in the Amsterdam Gardens, calls attention to its small size, to its tessellated skin, to the pyriform shape of the ear, and to the infolding of its posterior edge.

D.—Elephas maximus hirsutus (Fig. 25).

Elephas maximus hirsutus, *Lydekker*, *Proc. Zool. Soc.* 1914, p. 285.

Fig. 25—Young Female Malay Elephant (*Elephas maximus hirsutus*), about three years old, Negri Sembilan, Malay Peninsula, formerly in the Gardens of the Zoological Society, Regent's Park, London.

Presented by the Rowland Ward Trustees. Type of the subspecies (14. 2. 16. 1).

Typical locality Malay Peninsula.
Type in collection.

* *The Field*, vol. 123, 1914, p. 745.

2. Subgenus **LOXODONTA.**

Loxodonte, *F. Cuvier, Hist. Nat. Mamm.* livr. 31, pl. 1825.

Loxodonta, *F. Cuvier, Zool. Journ.* vol. iii, p. 140, 1827; *Gray, List Mamm. Brit. Mus.* p. 184, 1843, *Cat. Carnivora, etc. Brit. Mus.* p. 359, 1869.

Loxodon, *Falconer, Quart. Journ. Geol. Soc.* vol. xiii, p. 318, 1857; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii. p. 483, 1884; nec *Müller and Henle*, 1841.

Loxo(-disko-)don, *Pohlig, Nova Acta Ac. Cæs, Leop.-Car.* vol. liii, pp. 138 and 352. 1888.

II. ELEPHAS (LOXODONTA) AFRICANUS (Figs. 22 A, 27–31).

Elephas africanus. *Blumenbach, Handbuch Naturgeschichte*, 1779, *Abbild. nat. Gegenstände*, pl. xix, fig. c, 1810; *Cuvier, Règne Animal*, vol. i, p. 231, 1817; *Griffith, Animal Kingdom*,

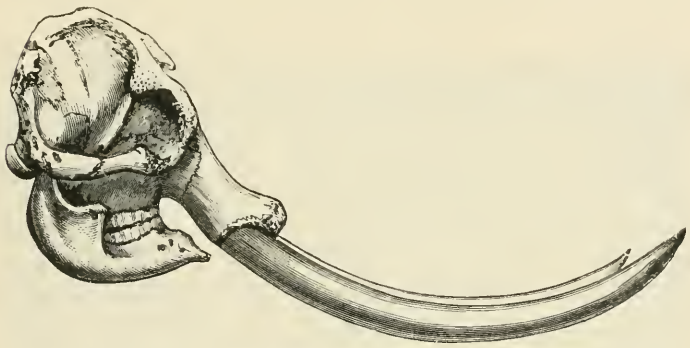

Fig. 26.—Skull of African Elephant (*Elephas africanus*).

vol. iii, p. 327, vol. v, p. 286, 1827; *Jardine, Naturalist's Libr., Mamm.* vol. v, p. 124, pl. iv, 1837; *Giebel, Säugethiere*, p. 159, 1859; *Kirk, Proc. Zool. Soc.* 1864, p. 654; *Flower and Garson, Cat. Osteol. Mus. R. Coll. Surg.* pt. ii, p. 484, 1884; *W. L. Sclater, Cat. Mamm. Ind. Mus.* pt. ii. p. 208, 1891, *Fauna S. Africa, Mamm.* vol. i, p. 319, 1900; *Flower and Lydekker, Study of Mammals*, p. 425, 1891; *Matschie, Säugeth. Deutsch-Ost.-Afrika*, p. 88, 1895; *Pousargues, Ann. Sci. Nat. Zool.* ser. 8, vol. iv, p. 138, 1896; *Great and Small Game of Africa*, p. 1, 1899; *Beddard, Cambridge Nat. Hist., Mamm.* p. 221, 1902; *Lydekker, Game Animals of Africa*, p. i, 1908; *Andrews, Guide to Elephants Brit. Mus.* p. 42, 1908; *Lull, Rep. Smithson. Inst.* 1908, p. 671, 1909.

Loxodonta africana. *Gray, List Mamm. Brit. Mus.* p. 184, 1843, *Cat. Carnivora, etc. Brit. Mus.* p. 359, 1869, *Hand-List Thick-skinned*

Mamm. Brit. Mus. p. 74, 1873; *Gerrard, Cat. Bones Mamm. Brit. Mus.* p. 275, 1862.

Elephas (Loxodonta) africanus, *Blanford, Zool. Abyssinia*, p. 258, 1870.

Elephas (Loxodon) africanus, *Ward, Records of Big Game*, ed. 6, p. 481, 1910, ed. 7, p. 479, 1914.

Loxodon africanus, *Osborn, Bull. Geol. Soc. America*, vol. xxv, p. 409, 1914.

Typical locality unknown.

A.—Elephas africanus capensis (Fig. 27).

Elephas capensis, *Cuvier, Tabl. Hist. Nat. Anim.* p. 142, 1798.

Elephas africanus capensis, *Matschie, Sitzber. Ges. nat. Freunde*, 1900, p. 193; *Rothschild, Powell-Cotton's Abyssinia*, p. 483, 1902; *Lydekker, Proc. Zool. Soc.* 1907, p. 384, *Game Animals of Africa*, p. 4, 1908.

(?) Elephas africanus typicus, *Lydekker, Proc. Zool. Soc.* 1907, p. 384.

Elephas africanus toxotis, *Lydekker. Proc. Zool. Soc.* 1907, p. 388, *Game Animals of Africa*, p. 4, 1908.

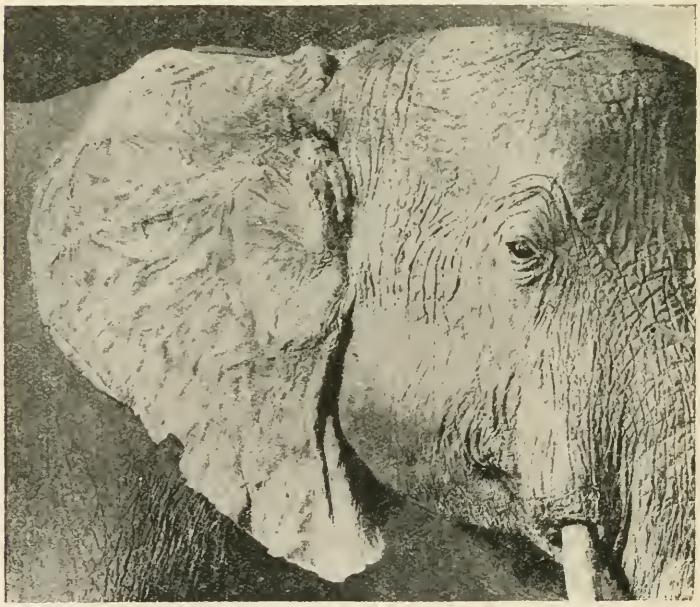

Fig. 27.—Head of a Female Cape Elephant (*Elephas africanus capensis*), in the South African Museum, Cape Town.
From Lydekker, *Proc. Zool. Soc.* 1907, p. 385.

Typical locality eastern Cape Colony, in the neighbourhood of the Orange River.

E. a. toxotis was named on the evidence of a mounted female specimen (fig. 27) in the South African Museum, Cape Town, which the writer, when he named the presumed race, was informed by the then director came from the western side of Cape Colony. He has, however, been subsequently informed by Mr. W. L. Sclater that it was really shot in the Addo Bush, and that the skin was mounted during his own tenancy of the directorship of the South African Museum.

B.—Elephas africanus selousi.

Elephas africanus selousi, *Lydekker*, *Proc. Zool. Soc.* 1907, pp. 387 and 783, *Game Animals of Africa*, p. 4, 1908.

Typical locality Mashonaland, Rhodesia.

Type in Imperial Institute, London.

C.—Elephas africanus cyclotis.

Elephas africanus cyclotis, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1900, p. 194; *Rothschild*, *Powell-Cotton's Abyssinia*, p. 483, 1902; *Lydekker*, *Proc. Zool. Soc.* 1907, pp. 390 and 783, *Game Animals of Africa*, p. 4, 1908.

(?) Elephas africanus pumilio, *Noack*, *Zool. Anz.* xxix, p. 631, 1906; *Lyddeker*, *Proc. Zool. Soc.* 1907, p. 400, *Game Animals of Africa*, p. 8, 1908.

Loxodon cyclotis, *Osborn*, *Bull. Geol. Soc. America*, vol. xxv, p. 409, 1914.

Typical locality southern Cameruns, West Africa.

Type a young animal formerly living in the Berlin Zoological Gardens; figured by Heck.

D.—Elephas africanus cottoni.

Elephas africanus cyclotis, *Lydekker*, *Proc. Zool. Soc.* 1907, p. 390, fig. 111, nec *Matschie*.

Elephas africanus cottoni, *Lydekker*, *Proc. Zool. Soc.* 1907 p. 783, *Game Animals of Africa*, p. 5, 1908.

Typical locality Belgian Congo.

Type in collection of Major P. H. G. Powell-Cotton, at Quex Park, Birchington, Kent.

E.—Elephas africanus knochenhaueri (Fig. 28).

Elephas africanus knochenhaueri, *Matschie, Sitzber. Ges. nat. Freunde*, 1900, p. 197; *Rothschild, Powell-Cotton's Abyssinia*, p. 483, 1902; *Lydekker, Proc. Zool. Soc.* 1907, pp. 384 and 391, *Game Animals of Africa*, p. 5, 1908.

Elephas africanus knochenhaureri, *Trouessart, Cat. Mamm.*, Suppl. p. 602, 1905, errorim.

Fig. 28.—Head of Male Elephant (*Elephas africanus knochenhaueri* ?), from near Fort Manning, S. Nyasaland, mounted in the Central Hall of the British Museum (6. 8. 20. 1).

From Lydekker, *Proc. Zool. Soc.* 1907, p. 392.

Typical locality German East Africa.

Type in Berlin Museum.

F.—Elephas africanus peeli.

Elaphas africanus peeli, *Lydekker, Proc. Zool. Soc.* 1907, p. 394, *Game Animals of Africa*, p. 5, 1908; *Roosevelt, African Game Trails*, p. 487, 1910.

Typical locality Aberdare Mountains, B. E. Africa.

Type in collection of Mr. C. V. A. Peel, Woodstock Road, Oxford.

G.—Elephas africanus cavendishi.

Elephas africanus cavendishi, *Lydekker*, *Proc. Zool. Soc.* 1907, p. 395, *Game Animals of Africa*, p. 7, 1908.

Typical locality Lake Rudolf district, northern East Africa.

Type in collection.

H.—Elephas africanus oxyotis (Figs. 29, 30).

Elephas africanus oxyotis, *Matschie*, *Sitzber. Ges. nat. Freunde*, 1900, p. 196; *Rothschild*, *Powell-Cotton's Abyssinia*, p. 482, 1902;

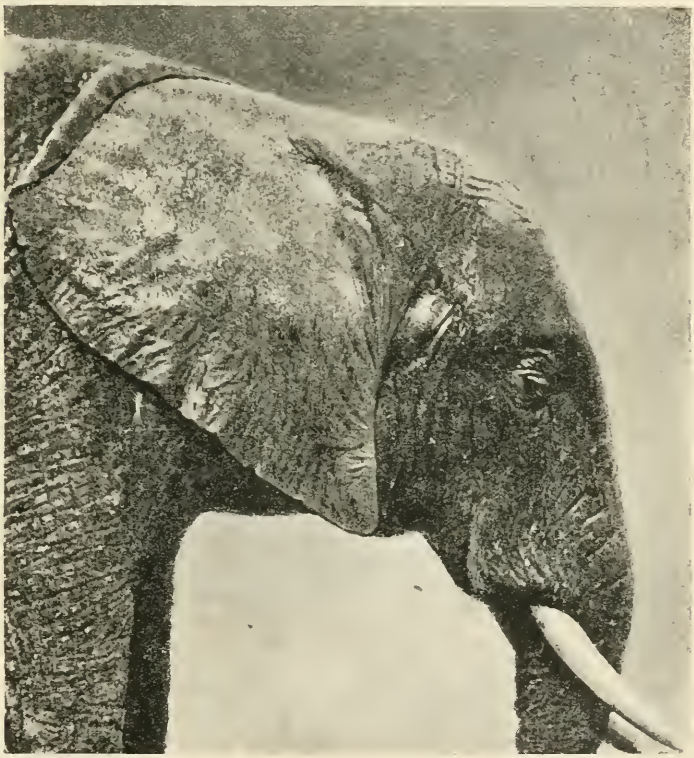

Fig. 29.—Head of an Abyssinian Elephant (*Elephas africanus oxyotis*), formerly living in the Gardens of the Zoological Society, Regent's Park, London.

From Lydekker, *Proc. Zool. Soc.* 1907, p. 396.

Lydekker, *Proc. Zool. Soc.* 1907, p. 359, *Game Animals of Africa*, p. 8, 1908; *Allen*, *Bull. Mus. Harvard*, vol. lviii, p. 325, 1914.

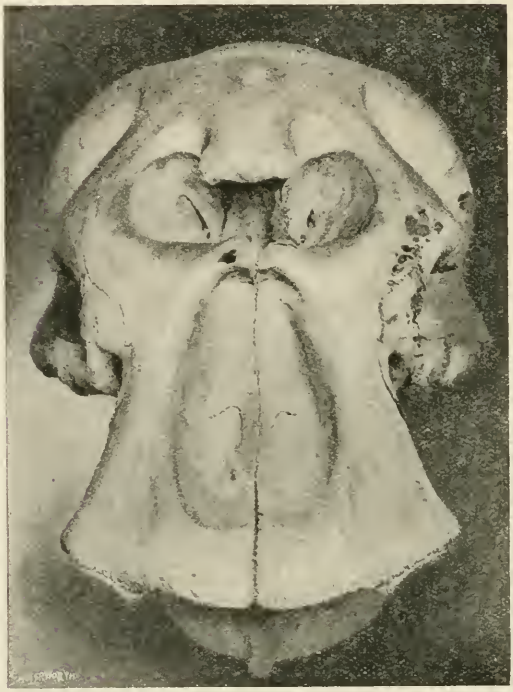

Fig. 30.—Skull of Abyssinian Elephant (*Elephas africanus oxyotis*), White Nile.

Presented by Sir Samuel Baker, 1870 (708, p.).

From Lydekker, *Proc. Zool. Soc.* 1907, p. 401.

Typical locality Upper Atbara Valley, Abyssinia.
Type in Berlin Museum.

I.—Elephas africanus orleansi.

Elephus africanus orleansi, *Lydekker*, *Proc. Zool. Soc.* 1907, p. 398, *Game Animals of Africa*, p. 8, 1908; *Drake-Brockman*, *Mamm. Somali*. p. 111, 1910.

Typical locality Somaliland.
Type in collection of H.R.H. the Duke of Orleans.

J.—Elephas africanus rothschildi.

Elephas africanus rothschildi, *Lydekker*, *Proc. Zool. Soc.* 1907, p. 399, *Game Animals of Africa*, p. 8, 1908.

Typical locality Lake Chad district, French Sudan.

K.—Elephas africanus albertensis (Fig. 31).

Elephas africanus albertensis, *Lydekker*, *Proc. Zool. Soc.* 1907, p. 403, *Game Animals of Africa*, p. 8, 1908.

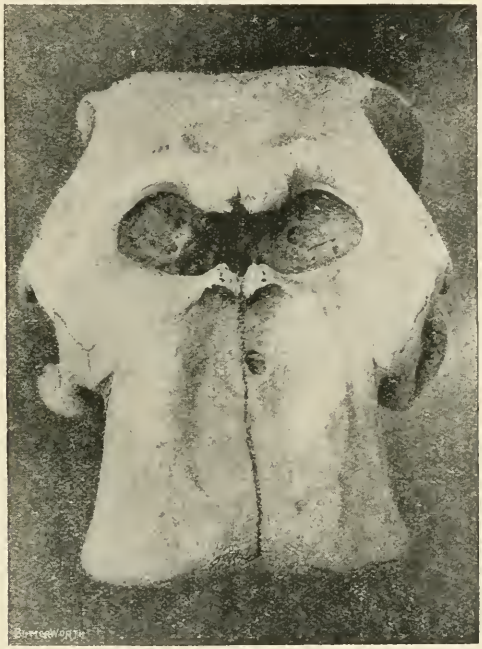

Fig. 31.—Skull of Semliki Elephant (*Elephas africanus albertensis*), from the South end of the Albert Nyanza.
Presented by Stanley C. Tomkins, Esq., 1906 (6. 6. 16. 1).
From Lydekker, *Proc. Zool. Soc.* 1907, p. 402.

Typical locality the southern end of the Albert Nyanza, whence individuals of this race wander from time to time into the Semliki Valley.

Type in collection.

ADDENDA.

VOL. I.

SUBORDER **ARTIODACTYLA** (p. 3).

FAMILY BOVIDÆ (p. 9).

Genus **BOS** (p. 11).

X. BOS (BUBALUS) CAFFER (p. 50).

D[1].—Bos caffer athiensis.

Bubalus caffer athiensis, *Matschie*, *Deutsche Jäger-Zeitung*, vol. lix. p. 210, 1912.

Typical locality Galla-Galla Mountains, the range also including the Athi Plains, British East Africa.

Type in Germany.

Allied to *B. c. schillingsi* (vol. i, p. 54), but the tips of the horns rising only to a slight extent above the line of the highest part of the base; the tips themselves being strongly bent backwards and only a little inwards; the basal portion of the palms of the horns are very flat, and towards the middle of their length the horns are strongly bent backwards.

No. 11. 12. 13. 1, vol. i, p. 56, which came from the Athi Plains, represents this race, to which No. 87. 7. 8. 6 (*loc. cit.*) may also belong.

The following names have also been applied by Matschie to buffaloes from British and German East Africa, but their

claims to recognition as local races seem very doubtful, and some of them at any rate are probably based on individual heads.

a.—Bubalus caffer tanæ, *Matschie, Deutsche Jäger-Zeitung*, vol. lix, p. 210, 1912.

Typical locality Tana Valley, southward of Mount Kenia, B. E. Africa.

The horns, instead of being so strongly bent downwards that the axes of the basal and terminal halves form a right angle with one another, as in *B. c. athiensis*, only curve to such an extent that an obtuse angle is formed at that point.

No. 10. 12. 10. 1, vol. i, p. 56, should be referred to this type, if it be really distinct from *B. c. athiensis*.

b.—Bubalus caffer bubuensis, *Matschie, Deutsche Jäger-Zeitung*, vol. lix, pp. 102 and 103, fig. 79, 1912, *Beröff. Inst. Jagdkunde*, vol. ii. p. 170, 1913.

Typical locality Bubu Valley, Eastern Turu, German East Africa.

Stated to resemble *B. c. ruahensis* (vol. i, p. 53), but the horns diminish gradually and evenly (instead of suddenly) from base to tip, and the tips are only slightly turned inwards, thereby producing a much wider span.

c.—Bubalus massaicus, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii, pp. 169 and 170, fig. 83, 1913.

Typical locality Masailand, German East Africa.

Stated to differ from the preceding form by the somewhat inward inclination of the horn-tips, and by certain other details in the general form of the horns.

d.—Bubalus wintgensi, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii, pp. 169 and 170, fig. 83, 1913.

Typical locality Uka, German East Africa.

Stated to differ from *massaicus* by the smaller skull, and by the breadth of the horns, at a point from the base equidistant with the interval between the tip of the muzzle and the horn-base, being much more than half as wide as the maximum basal breadth, instead of only half as wide.

c.—Bubalus urundicus, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii. pp. 169 and 170. fig. 83, 1913.

Typical locality south-east Urundi, German East Africa.

Stated to differ from the preceding form (*wintgensi*) by the relatively shorter skull, and by the horns being wider at the base and more downwardly inclined, with the sharp tips directed more suddenly inwards, and more bent backwards; they also diminish abruptly in calibre at about the middle of their length, and at their origin from the forehead are directed more backwards and less outwards.

K.—Bos caffer æquinoctialis (p. 58).

Allen, *Bull. Mus. Zool. Harvard*, vol. lviii, p. 308, considers that Matschie's *B. c. azrakensis* (vol. i, p. 57) is inseparable from this race: the long, backwardly-directed horn-tips of the type of the former being apparently an individual peculiarity of an immature animal.

P.—Bos caffer brachyceros (p. 62).

No. 10. 5. 16. 1, vol. i, p. 61, apparently belongs to this race.

P¹.—Bos caffer houyi.

Bubalus caffer houyi, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 494, 1914.

Typical locality Pelle, near Gore, Logone Valley, Camerun frontier.

Type in Senckenberg Museum, Frankfurt-am-Main.

Nearly allied to *B. c. brachyceros*, but smaller, with less expanded horns, of which the tips are less nearly vertical; general colour ranging from reddish brown to black, with throat and under-parts varying from brownish red to reddish brown; facial region of skull narrower than in *brachyceros*, and frontals scarcely convex at base of horns.

No specimen in collection.

Q[1].—Bos caffer adamauæ.

Bubalus caffer adamauæ, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 44, 1914.

Typical locality Garua, Benue Valley, Adamaua.

Type in Senckenberg Museum, Frankfurt-am-Main.

Allied to *B. c. planiceros* and *B. c. beddingtoni*, but skull rather smaller than in the former, with moderately prominent orbits, slender muzzle, and low and wide occiput; palms of horns more inclined backwards than in either of the above races, without a downward direction, and relatively narrow; tips long, stout, more inclined inwards than in the other races, with the extremities directed backwards (not upwards).

4. 7. 9. 13 (p. 63) is referred by its founder to this race.

R.—Bos caffer hunti (p. 67).

Bubalus* hunti, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii. p. 169. 1913.

14. 10. 16. 1. Skull, with horns, and scalp-skin. Near Onitsha, central Nigeria.

Presented by Lieut. A. W. Hunt, R.N., 1914.

14. 10. 16. 2. Skull, with horns. Same locality.

Same history.

T[1].—Bos caffer diehli.

Bubalus caffer diehli, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xi. p. 268, 1913.

Bubalus diehli, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii. p. 169. 1913.

Typical locality Manfe, Cross River, western Cameruns.

Type in Senckenberg Museum, Frankfurt-am-Main.

Intermediate in size and characters of skull and horns between *B. c. beddingtoni* and *B. c. nanus*. Skull shorter and wider than in the former, with relatively longer and narrower nasals and more prominent orbits; horns rather massive, but without basal boss, directed slightly backwards and downwards, with the short and backwardly inclined tips

* Misprinted *Bubalis* in original.

suddenly compressed and sharply differentiated from the palms, which are "edged."

No specimen in collection.

T[2].—Bos caffer hylæus.

Bubalus caffer hylæus, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 44, 1914.

Typical locality Ja Valley, south-east Cameruns.

Type in Senckenberg Museum, Frankfurt-am-Main.

Very similar to *B. c. diehli*, but smaller; skull narrower, especially in the region of the muzzle, which is proportionately longer, with less prominent orbits; horns small, with narrow, flat palms, practically devoid of basal thickening, and more inclined backwards than in *B. c. diehli*, although less so than in the type of *B. c. nanus*, and with long, slender tips, lying in the main behind frontal plane, and directed backwards and slightly inwards and downwards at extremities; general colour of female deep reddish brown, richer and clearer on flanks and under-parts, with more or less black on face and the throat orange-brown; neck with black mane; shoulders and thighs with an admixture of black, and legs wholly black; tail paler than back, with black tip. This is the smallest of all the races; the horns lack the inward curvature of the type of *B. c. nanus*.

No specimen in collection.

T[3].—Bos caffer adametzi.

Bubalus adametzi, *Matschie*, *Beröff. Inst. Jagdkunde*, vol. ii, pp. 167 and 169, fig. 81, 1913.

Typical locality Donga Valley, a tributary of the Benue, Cameruns.

Type in Berlin Museum.

A red buffalo, with broad horns, of which the short tips are directed mainly upwards, so as to be nearly parallel, and to form approximately a right angle with the axis of the basal half of the horn.

No specimen in collection definitely referable to this race.

T[1].—Bos caffer nuni.

Bubalus nuni, *Matschie, Beröff. Inst. Jagdkunde*, vol. ii, pp. 167 and 169, fig. 81, 1913.

Typical locality Nun Valley, a tributary of the Sanaga, Cameruns.

Type in Berlin Museum.

Stated to differ from the preceding by the longer and more inwardly inclined horn-tips, which form an acute angle with the axis of the basal half of the horn.

No specimen in collection.

Genus OVIS (p. 73).

II. OVIS MUSIMON (p. 75).

Kowarzig, *Zool. Anz.* vol. xli, p. 440, 1913, has proposed the names *O. m. occidento-sardinensis* and *O. m. corsico-sardinensis* for muflons respectively inhabiting (1) western Sardinia, and (2) northern Sardinia and southern Corsica. Such a distribution is of itself sufficient to indicate the small value of these so-called races.

VI. OVIS AMMON (p. 92).

A[1].—Ovis ammon kozlovi.

Ovis kozlovi, *Nasonov, Bull. Ac. Sci. St. Pétersb.* 1913, p. 621; 1914, p. 777.

Typical locality Jabarai Mountains, southern Gobi.

Type in Petrograd Museum.

Allied to *O. a. ammon* but smaller; specially distinguished by the grey-brown ground-colour of rump, traversed by an ill-defined light brownish red stripe extending on to fore part of back; horns similar to those of typical race but slighter.

No specimen in collection.

G.—Ovis ammon nigrimontana (p. 103).

Ovis poloi nigrimontana, *Nasonov*, *Bull. Ac. Sci. St. Pétersb.* 1914, pp. 705 and 772, pl. ii.

Typical locality Karatau (Black Mountain), province of Syr Daria, eastward of the city of Turkestan, on the right or eastern bank of the Syr Daria, Russian Turkestan (not Bokhara, as stated in vol. i, p. 104).

A relatively large race, with horns of the *O. a. karelini* type, but more expanded, and thus approximating to those of *O. a. poli;* apparently no throat-ruff.

No specimen in collection.

G¹.—Ovis ammon severtzovi.

Ovis severtzovi, *Nasonov*, *Bull. Ac. Sci. St. Pétersb.* 1914, p. 761.

Typical locality Karatau or Nurata range, 100 miles north-west of Samarkand, on the Bokharan frontier of Russian Turkestan.

Type in Petrograd Museum.

A smaller race (represented by the skull and horns figured in vol. 1, p. 103, as *O. a. nigrimontana*) than the last, approximating in certain respects to *O. vignei arkar*, especially in the presence of a distinct throat-ruff, which does not, however, extend on to the sides and under-surface of the head; general colour as described in vol. i, p. 104.

No specimen in collection.

I¹.—Ovis ammon collium.

Ovis collium, *Severtzow*, *Nachr. Ges. Natur. Moscow*, vol. viii, no. 2, p. 154, 1873; *Kowarzig*, *Zool. Anz.* vol. xli, p. 442, 1914.

Ovis poloi collium, *Nasonov*, *Bull. Ac. Sci. St. Pétersb.* 1914, p. 744, pl. iii.

(Omitted from vol. i.)

Typical locality Kirghiz Steppe, north of Lake Balkash.

Type in Moscow Museum.

Descriptions in Russian. Nasonov's figure shows a large white-muzzled argali, with horns approximating closely to the *O. a. poli* type, but stouter and less expanded.

No specimen in collection.

Other Races Described.

a.—O. poli adametzi, *Kowarzig*, *Zool. Anz.* vol. xli, p. 442, 1913.

Represented by an argali from the Lob Nor district, characterised by the horns in their first half-turn lying parallel to the long axis of the skull, and having their tips so much bent backwards that when the skull is placed horizontally they reach beyond its lower plane.

b.—Ovis middendorfi, *Kowarzig*, *Zool. Anz.* vol. xli, p. 443, 1913.

Proposed for a sheep from the Ud Valley, on the south-west side of the Sea of Ochotsk, identified by Middendorff with *O. canadensis nivicola*, but which, according to the author, has nothing to do with that species and race. So far as the original mention is concerned, the designation is a *nomen nudum*.

VII. OVIS CANADENSIS (p. 109).

O.—Ovis canadensis borealis (p. 121).

Ovis borealis lydekkeri, *Kowarzig*, *Zool. Anz.* vol. xli, p. 443, 1913.

Typified by No. 2. 4. 26. 2, which is regarded by Kowarzig as distinct from the true *borealis*, although on what grounds is not stated in the original notice.

Genus CAPRA (p. 129).

In *The Field* for 1913 (vol. cxxii, p. 1251*) the writer has given reasons for regarding the horns of all wild goats except the markhor as homonymous. This will justify the adoption, at least in a subgeneric sense, of Trouessart's *Orthægoceros*.†

* The article is reproduced, in a paraphrased form, in Theodore Cook's *The Carver of Life*, London, 1914, p. 211.

† Misprinted *Orthagoceros* in vol. i, pp. 129 and 162.

VOL. II.

Genus BUBALIS (p. 3).

II. BUBALIS MAJOR (p. 6).

A.—Bubalis major major.

Bubalis major major, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 33, 1914.

General characters those of the species. Includes most of the specimens catalogued in vol. ii, pp. 7, 8, with the exception of those from northern Nigeria.

B.—Bubalis major invadens.

Bubalis major invadens, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 33, 1914.

Typical locality Garua, Benue Valley, Adamaua, Nigeria.

Type in Senckenberg Museum, Frankfurt-am-Main.

Horns stouter than in typical race, with the long tips slightly divergent or parallel, and less twisting in the middle of the length; frontal region of skull slightly convex, but less bent upwards; jugal mainly deep, but its front border not squared, and passing imperceptibly into the masseteric crest of the maxilla.

Nos. 13. 3. 8. 3 and 95. 8. 25. 1–3, together with the other northern Nigerian specimen catalogued in vol. ii, p. 7, belong to this race.

C.—Bubalis major matschiei.

Bubalis major matschiei, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 34, 1914.

Typical locality Kpandu district, Togoland.

Type in Senckenberg Museum, Frankfurt-am-Main.

Horns very large and expanded, with markedly divergent tips, and the angle formed by them with the short, strongly

twisted, and regularly convergent middle portion generally smaller than in the N. Nigerian race; forehead flat, without upward bend; jugal deep, with a squared front border, sharply defined from the small masseteric crest of the maxilla.

No specimen in collection.

IV. BUBALIS COKEI (p. 13).

The following names, in addition to those quoted in vol. ii, have been applied to local forms of this species:—

a.—Bubalis cokei wembaerensis, *Zukowsky*, *Wild und Hund*, vol. xvi, p. 208, 1910, *Arch. Naturgesch.* vol. lxxix, p. 98, 1913.

Typical locality Wembaer Plains, German East Africa.

b.—Bubalis cokei sabakiensis, *Zukowsky*, *Wild und Hund*, vol. xvi, p. 225, 1910, *Arch. Naturgesch.* vol. lxxix, p. 97, pl. i, 1913.

Typical locality Sabaki Valley, Athi Plains, British East Africa.

c.—Bubalis cokei tanæ, *Zukowsky* (ex *Matschie*, *MS.*), *Arch. Naturgesch.* vol. lxxix, p. 97, 1913.

Typical locality Tana Valley, British East Africa.

d.—Bubalis cokei schillingsi, *Zukowsky* (ex *Matschie*), *Arch. Naturgesch.* vol. lxxix, p. 99, 1913.

Bubalis schillingsi, *Matschie*, *Schillings*, *Mit Blitzlicht und Büchse im Zauber des Elelescho*, p. 384, 1910: nomen nudum.

Typical locality Pangani Valley, East Africa.

VI. BUBALIS LELWEL (p. 19).

Nos. 0. 6. 4. 1 and 11. 8. 14. 28–29 (p. 20) have been referred by Blaine, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 335, 1914, to a new species, *B. bubastis*, which, as being extinct, does not come within the purview of this Catalogue.

B¹.—Bubalis lelwel modestus.

Bubalis lelwel modestus, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8. vol. xiii, p. 32, 1914.

Typical locality Bahr Kita, upper Shari district.

Type in Senckenberg Museum, Franfurt-am-Main.

Nearly related to *B. l. tschadensis*, but smaller and darker, with the short basal portion of the horns less nearly vertical, and the angle formed by this and the middle portion smaller; general colour dull reddish brown, darker on loins, paler on fore-quarters and flanks, and passing into ochery buff on under-parts. Stated to be in some degree intermediate between the Lake Chad and Eastern Sudan races, although less rufous and with more nearly vertical horn-bases than either of the latter.

No specimen in collection.

C¹.—Bubalis lelwel keniæ.

Bubalis lelwel keniæ, *Heller*, *Smithson. Misc. Collect.* vol. lxi, no. 17, p. 3, 1913.

Typical locality northern Kenia Plateau, British East Africa.

Type in U.S. National Museum, Washington.

Closely allied to *B. l. jacksoni*, but with more divergent horns and shorter horn-pedicle; general colour cinnamon-rufous, becoming lighter on flanks and under-parts. Distinguished from the *B. coksi* group by V-shaped horns, larger size, and longer head. Represents the extreme western extension of *B. lelwel*.

No specimen in the collection can be definitely referred to this form.

VI¹. BUBALIS LUZARCHEI.

Bubalis luzarchei, *Grandidier*, *Bull. Mus. Paris*, 1914, p. 316.

Typical locality upper Gambia.

Type in the Paris Museum.

Characterised by the excessive elongation of the face (inclusive of the horn-pedicle, with U-shaped horns, which

are less curved than those of *B. major*), and approximate in contour to those of *B. lelwel*, from all the forms of which this species is stated to present well-marked differences; general colour grey-roan, duller than in *B. major* and approximating to the hues of *Hippotragus equinus;* limbs somewhat darker.

No specimen in collection.

Genus DAMALISCUS (p. 32).

IV. DAMALISCUS KORRIGUM (p. 39).

Blaine has shown that the western races, which inhabit more or less arid districts, are characterised by the concave facial profile, narrow muzzle, and long, much recurved, and compressed horns; while the eastern forms, which mainly frequent moist districts, have the profile more nearly straight, the muzzle broader, the nasals longer, and the horns shorter, less recurved, and cylindrical. The purple bloom, which is absent in the typical race, appears in the Northern Nigerian *D. k. purpurescens*, and attains its fullest development in the Juba race.

A[1].—Damaliscus korrigum lyra.

Damaliscus koba lyra, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 34, 1914; *Blaine*, *ibid.* p. 332.

Typical locality Gribingi Valley, upper Shari district.

Type in Senckenberg Museum, Frankfurt-am-Main.

Differs from *D. k. korrigum*, of Lake Chad and lower Shari districts, by the thinner horns, of which the tips are strongly curved upwards and inwards, and the more slender skull, which is markedly narrower across the orbits. From *D. k. tiang*, which has a similarly narrow skull, this race differs by the marked curvature of the horn-tips.

No specimen in collection.

A².—Damaliscus korrigum purpurescens.

Damiliscus korrigum purpurescens, *Blaine*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, pp. 329 and 333, 1914.

Typical locality Ibi, Northern Nigeria.

Distinguished from the typical race by the suffusion of the light bay general colour with a pale mauve bloom, and the presence of an indistinct dusky eye-stripe, terminating in a spot below each ear, as well as by the less marked concavity of the cranial profile.

Typified by No. 7. 7. 8. 245, and including No. 7. 7. 8. 246 (vol. ii, p. 41).

D¹.—Damaliscus korrigum topi.

Damaliscus korrigum jimela, supra, vol. ii, p. 44, partim.
Damaliscus korrigum topi, *Blaine*, *Ann. Mag. Nat. Hist.* ser 8, vol. xiii, pp. 330 and 333, 1914.

Typical locality Malindi, British East Africa, the range including the coast districts of B. E. Africa between the Juba and Sabaki Valleys.

Size smaller than in other races; general colour purplish red (darker than in *D. k. tiang*) suffused with a greyish mauve bloom, lighter on under-parts; face-blaze ashy black, with a rusty tinge and sprinkling of white hairs; eye-stripe more or less distinct; black body-markings obscured by darkness of general colour; horns short and cylindrical; skull smaller than in any other race, with relatively longer nasals, and straight profile.

14. 2. 2. 1. Skull, with horns, and skin. Near Malindi, B. E. Africa; collected by Sir F. J. Jackson, K.C.M.G., C.B. Type. *Presented by Messrs. Rowland Ward, Ltd.*, 1914.

The specimens from the same locality (Nos. 93. 4. 10. 4 and 93. 6. 20. 1), catalogued on page 45 of vol. ii, also pertain to this race.

E.—Damaliscus korrigum jimela.

Damaliscus korrigum jimela, supra, vol. ii, p. 44. partim.
Damaliscus korrigum ugandæ, *Blaine*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, pp. 330 and 334, 1914.

Typical locality apparently Unyamwesi,* south-east of the Victoria Nyanza.

Size large; general colour maroon, suffused with an ashy bloom, continued on to under-parts; face-blaze blue-black; eye-stripe more or less nearly obsolete; horns as in preceding race, but skull much larger and heavier.

Blaine's *D. k. ugandæ*, based on the Ankoli specimens catalogued in vol. ii, can scarcely be other than Matschie's *D. jimela*, which appears to have been named from an incorrectly coloured sketch, and the description of which is consequently incorrect.

E¹.—Damaliscus korrigum eurus.

Damaliscus korrigum eurus, *Blaine*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, pp. 330 and 335, 1914.

Typical locality Ussangu, German East Africa.

General colour as in *D. k. jimela* (*ugandæ*), but lightening to bright reddish bay on hind-quarters; dark eye-stripe distinct, and extending to the sub-auricular spot. Represented by the specimens from the Ruaha Valley (Nos. 5. 2. 2. 18–19) catalogued on p. 45 of vol. ii.

This is the most southerly member of the species, the further southern extension is barred by the Tanganyika Plateau, beyond which the Korrigum is replaced by its near ally the Sassaby.

Genus CONNOCHÆTES (p. 48).

II. CONNOCHÆTES TAURINUS (p. 54).

B¹.—Connochætes taurinus cooksoni.

Connochætes taurinus cooksoni, *Blaine*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 337, 1914.

Typical locality Loangwa Valley, north-east Rhodesia.

Like *C. t. johnstoni*, but lacking the light frontal chevron, and the whole colour paler and greyer.

The type is No. 6. 5. 2. 2 (vol. ii, p. 56). No. 6. 5. 2. 1 also belongs to this race.

* Not Juba Valley, as stated in vol. ii, p. 45.

E.—Connochætes taurinus mearnsi.

Gorgon albojubatus mearnsi, *Heller, Smithson. Misc. Collect.* vol. lxi, no. 17, p. 1.

Typical locality Loita Plains, British East Africa.

Type in U.S. National Museum, Washington.

Differs from *C. t. albojubatus* by smaller bodily size, less spreading and more deflected horns, and darker limbs. Whether such differences are worthy of racial distinction may be doubtful.

No specimen in collection definitely referable to this form.

The following names have been applied to white-bearded gnus from German East Africa :—

a.—Connochætes albojubatus lorenzi, *Zukowsky, Arch. Naturgesch.* vol. lxxix, p. 81, 1913.

b.—Connochætes albojubatus schulzi, *Zukowsky, op. cit.* p. 83, 1913.

c.—Connochætes albojubatus henrici, *Zukowsky, op. cit.* p. 97, 1913.

Genus CEPHALOPHUS (p. 60).

XVI. CEPHALOPHUS CASTANEUS (p. 81).

A.—Cephalophus castaneus castaneus.

Size small; rostral portion of skull somewhat longer than interorbital width.

B.—Cephalophus castaneus orientalis.

Cephalophus dorsalis orientalis, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 35, 1914.

Typical locality Wellé Valley, Congo.

Type in Senckenberg Museum, Frankfurt-am-Main.

Size larger; rostral portion of skull considerably longer than interorbital width.

7. 7. 8. 224 (vol. ii, p. 82) is a paratype.

XXVI. CEPHALOPHUS (GUEVEI) MELANORHEUS (p. 96).

D[1].—Cephalophus melanorheus schultzei.

Cephalophus cærulus* schultzei, *Schwartz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 35, 1914.

Typical locality Bumba Valley, southern Cameruns.

Type in Senckenberg Museum, Frankfurt-am-Main.

Allied to *C. m. æquatorialis* (*bakeri* †) but with lighter under-parts, which in some examples are nearly white, but in others more or less faintly suffused with smoky grey; general colour dark chocolate-brown (warm sepia), brighter than in *C. melanorheus*, which this duiker also exceeds in size.

Some or all of the specifically undetermined specimens from the Cameruns entered in vol. ii, pp. 99 and 100, are probably referable to this race.

XXXII. CEPHALOPHUS (SYLVICAPRA) GRIMMI (p. 107).

G.—Cephalophus grimmi abyssinicus (p. 117).

14. 10. 18. 3. Skull, with horns. Bahr-el-Ghazal. *Presented by Col. C. F. Blanc*, 1914.

G[1].—Cephalophus grimmi pallidior.

Sylvicapra grimmia pallidior, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 36, 1914.

Typical locality Shari Valley.

Type in Senckenberg Museum, Frankfurt-am-Main.

Rather larger and distinctly paler than *C. g. abyssinicus*, with more prominent orbits and bigger auditory bullæ;

* Schwarz adopts this name in place of *C. monticola*, which he states is a synonym of *Ourebia oribi*, and includes *melanorheus* and *nyasæ* in that species.

† See vol. ii, p. 98, where it should have been stated that the typical locality is the Ituri: *bakeri* is recognised as a distinct race by Schwartz.

general colour strongly speckled pale yellow and black, with dorsal stripe but little darker.

7. 7. 8. 226–7, and probably 1. 5. 4. 8 (vol. ii, p. 118), are referable to this race.

G².—Cephalophus grimmi luteus.

Cephalophus grimmia lutea. *Dollman*, *Proc. Zool. Soc.* 1914, p. 318, *Abstr. P.Z.S.* 1914, p. 26.

Typical locality Mount Maroto, Uganda.

Allied to *C. g. abyssinicus*, but paler and with bigger cheek-teeth. General colour pale greyish buff, the buff predominent on neck, shoulders, and flanks, and the grey more noticeable on back and hind-quarters; the whole coloration very similar to that of typical South African race.

13. 10. 18. 164. Skull and skin, female. Mount Maroto, 3,700 feet; collected January, 1913. Type.
Presented by G. P. Cosens, Esq., 1913.

13. 10. 18. 165. Skull, with horns, and skin, immature. Same locality. *Same history.*

13. 10. 18. 166. Skull, with horns, and skin, immature. Falabek, east of Nimule, Uganda. *Same history.*

M.—Cephalophus grimmi deserti.

Sylvicapra grimmia deserti, *Heller*, *Smithson. Misc. Collect.* vol. lxi. no. 17, p. 4.

Typical locality Voi, British East Africa.

Type in U.S. National Museum, Washington.

Stated to be of relatively large size, and lighter in colour, with shorter coat and less inclined horns, than other East African races of this species; general colour buffish, without the tawny tinge of the highland forms, and with the dark chin-spots faint or obsolete. Lacks the dark ochery tinge of the lowland *C. g. hindei*, and is much larger and lighter than *C. g. roosevelti*.

No specimen in collection.

Genus OUREBIA (p. 132).

IV. OUREBIA MONTANA (p. 138).

A.—Ourebia montana montana (p. 139).

14. 10. 18. 4. Skull and horns. Near Rumbek, Bahr-el-Ghazal. *Presented by Col. C. F. Blane*, 1914.

A[1].—Ourebia montana dorcas.

Ourebia ourebi* dorcas, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 37, 1914.

Typical locality Bahr Keeta, upper Shari district.

Type in Senckenberg Museum, Frankfurt-am-Main.

Smaller and more brightly coloured than *O. m. montana*, with narrower brain-case and auditory bullæ; general colour dull orange-fawn, lighter on neck and flanks, and still more so on thighs; tail rather darker on back above, with the tip deep rufous.

No specimen in collection.

A[2].—Ourebia montana splendida.

Ourebia ourebi splendida, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 38, 1914.

Typical locality between Jogto and Lai, east of Logone Valley, North-west Africa.

Type in Senckenberg Museum, Frankfurt-am-Main.

Differs from *O. m. dorcas* by the shorter coat, brighter colour (orange-buff), and more definite markings.

No specimen in collection.

B.—Ourebia montana æquatoria (p. 140).

14. 10. 18. 5. Skull, with horns, provisionally referred to this race. Uganda. *Presented by Col. C. F. Blane*, 1914.

* Schwarz regards both *O. montana* and *O. nigricaudata* as specifically inseparable from the typical representative of the genus.

Genus NEOTRAGUS (p. 158).

V. NEOTRAGUS PYGMÆUS (p. 169).

10. 6. 11. 1. Skull, imperfect, and skin, young. Bibiani,* near Dunkwa, Gold Coast.
Presented by Dr. H. G. F. Spurrell, 1910.

Genus REDUNCA (p. 202).

II. REDUNCA REDUNCA (p. 211).

E.—Redunca redunca cottoni (p. 217).

14. 10. 18. 1. Skull, with horns. Shambe, Bahr-el-Ghazal. *Presented by Col. C. F. Blane*, 1914.
14. 10. 18. 2. Skull, with horns. Rumbek, Bahr-el-Ghazal. *Same history.*

Genus KOBUS (p. 225).

II. KOBUS DEFASSA (p. 232).

To list on p. 238 add:—

v.—Kobus defassa togoensis, *Schwarz, Ann. Mag. Nat. Hist.* ser. 8. vol. xiii, p. 238, 1914.

Typical locality Togoland, West Africa.

Type in Senckenberg Museum, Frankfurt-am-Main.

Stated to differ from *K. d. unctuosus* by the more massive skull (in which the facial portion is rather short and narrow, and the premaxillæ are squared in front) and strongly curved horns, of which the tips are short and inclined inwards and upwards.

N.B.—The albino, No. 3. 6. 7. 1, entered on p. 240 of vol. ii, under the heading of *K. d. defassa*, should have been placed under that of *K. d. crawshayi* (p. 244).

* Bibianaha in text.

VII. KOBUS (ADENOTA) KOB (p. 253).

A[1].—Kobus kob riparius.

Adenota kob riparia, *Schwarz*, *Ann. Mag. Nat. Hist.* ser. 8, vol. xiii, p. 39, 1914.

Typical locality Kpandu district, western Togoland.

Type in Senckenberg Museum, Frankfurt-am-Main.

Allied to *K. k. kob* and *K. k. nigricans*, but smaller, and thus the most diminutive member of the group. Horns much as in the former, but shorter, slightly more curved inferiorly, and stouter, with shorter and more forwardly inclined tips; skull broad, with more prominent orbits but shorter rostrum than that of *K. k. nigrifrons*.

No specimen in collection.

VOL. III.

Genus GAZELLA (p. 28).

XXV. GAZELLA (NANGER) SOEMMERRINGI (p. 96).

A.—Gazella soemmerringi soemmerringi (p. 98).

14. 8. 1. 1. Skin, mounted, of a small and pale-coloured individual provisionally referred to this race. Dinder Valley, Sudan. *Presented by Major C. P. Bradshaw*, 1914.

CORRIGENDA.

VOL. I.

Page 20, line 12 from bottom, *for* 9 *read* 10.
,, 21, line 3 from bottom, for *Verk.* read *Verh.*
,, 29, line 2 from top, for *B. s. birmanicus* read *B. b. birmanicus.**
,, 56. No. 11. 12. 13. 1. *Add*—Athi Plains, Brit. E. Africa.
,, 81, last line, *for* R. S. Günther *read* R. T. Günther.
,, 88, line 7 from top, *after* 514 *add* 1842.
,, 102, line 6 from bottom, *for* 2. 3. 9. 8 *read* 2. 3. 9. 6.
,, 129, bottom line, and p. 162, line 16 from top, and in Index, pp. 243, 244, *for* Orthagoceros *read* Orthægoceros.
,, 160, line 10 from top, *for* 50 *read* $55\frac{1}{2}$.
,, 178, line 4 from top, *for* H. MacGregor *read* Atholl MacGregor.
,, 182, line 4 from bottom, *for* $7\frac{13}{16}$ *read* $7\frac{1}{2}$.
,, 184, line 2 from bottom, *for* $2\frac{7}{16}$ *read* $2\frac{3}{8}$.

VOL. II.

Page 45, line 20 from bottom, *for* Africa *read* B. E. Africa.
,, 52. Nos. 96. 11. 28. 5–7 were presented, as well as collected, by Mr. Selous.
,, 98. Add *Cephalophus æquatorialis bakeri* to Index.
,, 117, line 14 from bottom, *after* subspecifically *add* distinct.
,, 171, line 8 from bottom, *for* Bibianaha *read* Bibiani.
,, 249, lines 13 and 14 from bottom, *for* Loango Valley *read* Luongo River.

VOL. III.

Page 191, line 14 from bottom, *for* Lungo *read* Luongo.

VOL. IV.

Page 120, line 12 from bottom, *insert* and *before* Tunisia, *and omit* and Senegambia.

* The name *Bos banteng* was substituted for *B. sondaicus* as the text was passing through the press, and the need for alteration in this case was overlooked.

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